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COLON BACILLUS PYELONEPHRITIS

ITS NATURE AND POSSIBLE PREVENTION *

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It is not our ambition to present an old subject, the etiology and nature of colon pyelitis, in a spectacular manner. We merely wish to give the results of our own clinical and laboratory observations on the lesions produced and etiologic factors concerned in the production of the colon type of renal infection, mindful of the fact that some of our views may seem radical departures from the beaten path of previously existing opinions. Granting the correctness of our contentions concerning the manner of production of the disease and the nature of the lesion resulting, prevention of infection in certain types of cases becomes not only a fond hope but also a logical possibility.

We shall make no attempt to reproduce the evidence leading us to accept the following views as to the mode of origin and pathologic nature of colon bacillus infection of the kidney. These facts are given in detail in three previous communications.[1]

We believe and have produced evidence to show that renal infections are as a rule hematogenous. Colon bacilli circulate in the blood during the early hours of symptoms due to colon pyelonephritis, and can be demonstrated by blood culture. In a limited number of cases blood infection has been demonstrated to be primary, followed in order by albuminuria, bacilluria and pyuria. The portal of entry of bacillus into the blood stream is not always demonstrable; the intestine, a purulent urethra or prostate, and an inflamed bladder are the commonest sources of bacilli. We do not wish to be understood to deny the occurrence of renal infection by direct extension along the lumen of the ureter, in cases in which there is an incompetent ureterovesical valve, or to state that pure lymphatic extension is not occasionally the cause of renal infection; yet the recovery of bacilli from the blood stream in such cases leads us seriously to doubt the occurrence of renal infection by either of these methods without the intervention of the blood stream.

On reaching the kidney the bacilli are arrested in the glomeruli, through which they pass readily, without producing damage, into the tubule. Failure to produce glomerular lesions is due to low pathogenicity, with lack of pus-producing ability, of the colon bacillus for the human kidney. Once the bacilli reach the tubules, they pass to the pelvis and produce a pyelitis, multiplying both in the recesses of calices and in the mucosa of the pelvis and ureter. The portion of the kidney damaged during the process of excretion of this organism is the convoluted tubule, as evidenced in the few cases available for microscopic examination, by cloudy swelling, but clinically by marked decrease in the output of phenolsulphonephthalein. Chiefly because of this clinical evidence of renal tissue damage the term "colon pyelonephritis" is preferable to "colon pyelitis" for the acute stage of the disease.

Damage to the convoluted tubules as a result of colon infection of the kidney is of short duration. These kidneys return to normal function in many cases within a period of from ten days to two weeks, and the chance kidney seen at necropsy in cases in which there has been a recent colon infection may show no lesions and be passed by the pathologist as normal kidneys. At this stage of the disease the urine still shows bacilli and usually some pus. In sections stained for bacteria, the mucosa of the pelvis is seen to contain many bacilli growing among the epithelial cells, but none are to be found in the kidney tissue save occasional bacteria in the lymphatic channels, evidence of reascending infection from the pelvis back into the kidney tissue. In other words, an acute colon pyelonephritis in its subacute and chronic state becomes an almost pure pyelitis.

As a result of the activity of the colon bacillus in the pelvic mucosa, and repeated injury to the kidney tissue from frequent excursions of the bacilli from the pelvis, the chronic stage of the disease shows a thickened, lax, dilated pelvis lined with thickened mucosa, and infiltrated with lymphocytes and some pus cells. In the tips of the papillae there is scar tissue formation and lymphocyte infiltration with narrowing of the cortex chiefly from distention. The ureter shows the same chronic changes, and along with the bladder mucosa contributes largely to the production of pyuria. As a result of stasis either from obstruction or as the result of relaxation of the pelvis due to the infection, the end stage of a colon bacillus infection is pyonephrosis.

With the foregoing bacteriologic and pathologic findings as a basis, we have studied the evidence of immunity production in colon bacillus pyelonephritis under three headings:

(*a*) Evidence of the natural production of immunity as a result of accidental infection.

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* Read before the Section on Genito-Urinary Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Crabtree, E. G.: Observations on the Etiology of Renal Infection, Lancet-Clinic, Jan. 29, 1916. Cabot, Hugh, and Crabtree, E. G.: A Classification of Renal Infection with Particular Reference to Treatment, Boston Med. and Surg. Jour., June 1, 1916; The Etiology of Non-Tuberculous Renal Infections, read at the Triennial Congress of Physicians and Surgeons, Washington, May, 1916, Surg., Gynec. and Obst., 1916, **23**, 495.

(*b*) Evidence of artificial production of immunity in chronic cases with pyuria vaccination.

(*c*) Evidence of the artificial production of immunity in uninfected cases with a view of preventing infection as a complication to operation.

There seems to be no entirely satisfactory test to determine the amount of protective reaction the body elaborates in response to bacterial invasion. The most satisfactory means of estimating the factor for cocci, particularly the staphylococci, is Wright's opsonic index. Unfortunately there are a group of organisms, including the colon bacillus, which are phagocyted by leukocytes to only a small degree and for which the opsonic index provides an unsatisfactory control. It is a well recognized fact that agglutinin production and the production of bactericidal bodies do not take place in the same degree, yet the production of agglutinins is attended by an increase in bactericidins, and for certain organisms like the colon group is the most satisfactory simple test. We have made use of it in these investigations, realizing its limitations, yet depending on clinical evidences to substantiate laboratory evidences of afforded protection.

EVIDENCE OF NATURAL PRODUCTION OF IMMUNITY AS A RESULT OF SPONTANEOUS ACCIDENTAL COLON INFECTION

The normal adult individual harboring colon bacilli in his intestine and subject to occasional wound infection in which this organism may be concerned is generally recognized to carry about protective antibodies expressed in terms of agglutinin titer of from 1:10 to 1:40 for the common intestinal varieties of this organism. This normal resistance to infection may be low at times. During the past two years we have observed that the cases of so-called idiopathic colon

TABLE 1.—INCREASED AGGLUTINATING POWER OF SERUM

Case	Diagnosis	Pyelonephritis	Agglutinin Titer of Serum for Colon Bacillus Recovered from the Patient's Urine		After Pyelonephritis
			Entrance		
			Weak	Strong	Strong
1	Renal calculus.	Postoperative.....	1:10	0	1:100
2	Prostate.....	During drainage.....	1:20	0	1:60
3	Old pyelitis of pregnancy.	Recurrent pyelonephritis..	....	1:40	1:250
4	Urethral obstruction.	4 attacks of colon epididymitis in 3 months.	....	.....	1:600

pyelonephritis which have come to our clinic in which there could be demonstrated no abnormality of the kidney or lower urinary tract occurred in patients whose normal resistance had been lowered from overwork, underfeeding, recent or chronic illness, recent pregnancy, or acute intestinal disturbances. In other words, they occurred in patients whose normal resistance had been lowered, and in two of these the patient's serum did not agglutinate his own bacillus in 1:5 dilution.

We are also convinced that prostatics seen and operated on within from three to four weeks following a pyelonephritis are better operative risks, owing in great measure to acquired immunity.

In support of this view we present evidence of increased agglutinating power of the serum in three patients recovering from pyelonephritis and a fourth from the fourth attack of colon epididymitis (Table 1). In Case 4 there were three types of bacteria present, *B. coli*, a large staphylococcus, and an unknown bacillus. The patients' serum did not agglutinate the last two organisms mentioned.

EVIDENCE OF ARTIFICIAL PRODUCTION OF IMMUNITY IN CHRONIC PYELITIS BY USE OF VACCINES

It is extremely unlikely that immunity conferred by recent infection, while largely responsible for the course of the disease, is at all lasting. In a group of nineteen cases in which there had been clinical symptoms pointing definitely to a colon infection of the kidney from two months to one year preceding this investigation, only two showed an agglutinin titer over 1:30. One of these showed a titer of 1:40 and one of 1:80. After vaccine treatment three cases showed 1:600, 1:1,000 and a third 1:1,200. One case showed no definite agglutination in any dilution.

It is recognized that vaccine treatment of these cases, while beneficial to symptoms, is, as a rule, not curative of the condition. This fact is not surprising in view of our belief, expressed above, that the lesion in the kidney is chiefly of the mucosa rather than of the renal tissue. We know of no evidence to show that bactericidal products in the blood reach the urine as such, save in rare instances, and then in amounts insufficient to produce beneficial effects.

EVIDENCE OF ARTIFICIAL PRODUCTION OF IMMUNITY IN UNINFECTED CASES WITH THE AIM OF PREVENTING INFECTION AS A COMPLICATION OF OPERATION

The ideal case for study is the prostatic with uninfected urine who undergoes some form of drainage preliminary to operation either with inlying catheter, suprapubic puncture or the two-stage operation. Almost without exception these patients show some rise of temperature during the periods of drainage, often presenting symptoms of an acute pyelonephritis. Renal functional tests with phenolsulphonephthalein are apt to show an immediate drop, owing to renal decompression. In those cases in which a pyelonephritis develops, there is a still further decrease in output of the drug simultaneous with the onset of symptoms, followed in from ten days to two weeks by a return to somewhat below the former high level.

Believing that the relief of back pressure on the kidney causes only temporary and not serious disturbance, and that the largest element of danger to the patient is renal infection, we have endeavored to eliminate the latter by the administration of mixed colon vaccines during the periods of preliminary preparation. Vaccination was begun where possible a week before the patient was admitted to the hospital, and continued at the beginning of these investigations up to the time of operation, but later throughout the patient's convalescence.

The preparation of such a colon vaccine is made difficult because of the large number of strains of colon bacilli. Eighteen cultures of colon bacilli obtained from urine, from blood cultures and from cultures from the vagina in infants were employed. By agglutination tests either with serum from the patient from whom the culture was obtained, or by animal immunization, five cultures were found which produced serums which, while not agglutinating the other four, together produced some measure of agglu-

tinin for ten of the remaining thirteen strains of bacteria. These were Culture T, obtained from urine from a patient with pyelonephritis and hemorrhagic cystitis, Culture L, obtained from urine of a patient with pyelonephritis of unknown origin, high temperature and extreme prostration. Culture B, obtained from the vagina of an infant, Culture Lm, obtained from the blood of a prostatic with pyelonephritis, and Culture W, from the blood stream in a case of recurrent pyelonephritis following pregnancy. At the beginning of our work only Cultures T, L and B were used; later the others were added. The vaccine containing these three organisms was administered in three injections of 500, 1,000 and 1,500 millions. The second vaccine containing five strains produced more marked local reaction, and administration was begun at a lower dosage of 150 millions. Inasmuch as some of the cases which were given but three injections, the last three days before operation, developed rise of temperature and pyuria with positive colon cultures *late* in convalescence, we now continue the inoculations throughout convalescence.

In all the foregoing experiments the mass agglutination test was used. Various dilutions of serum were mixed in equal parts with 24 degree bouillon cultures of the organism, and incubated one hour.

Unfortunately for the rapid progress of these experiments, prostatics with uninfected urine are not common in the wards of the Massachusetts General Hospital. We have studied eight cases, in two of which operation was refused. Table 2 shows the agglutination titer for patients' serum and cultures L and T at entrance and after vaccination.

TABLE 2.—AGGLUTINATION TITER FOR PATIENTS' SERUM AND CULTURES L AND T

Number	Diagnosis	Entrance Strong		After Vaccination Strong	
		L	T	L	T
1	Prostate.....	1: 10	1: 10	.....	1: 500
2	Prostate.....	0	0	.....	1: 220
3	Prostate.....	.....	0	.....	1: 350
4	Prostate.....	1: 10	1: 10	1: 20	1: 180
5	Prostate.....	?	1: 10	.....	1: 1,000
6	Prostate.....	.....	.....	.....	1: 2,300
7	Prostate.....	1: 10	1: 60	.....	1: 3,000
8	Prostate.....	.....	1: 120	.....	1: 500

Patients 1 and 4 refused operation. Patient 1 was put on one catheterization a day, and when seen two months later had hazy urine with other bacteria but no colon bacilli. He failed to return for further observation.

Patients 2, 3, 7 and 8 were vaccinated with but three injections, and inoculation was discontinued at operation. The urine remained free from colon bacilli, and there were no symptoms of renal infection until late in convalescence, when all showed colon bacilli and other varieties of bacteria. Patient 3 had definite symptoms of right pyelonephritis and later right pyonephrosis.

Patient 5 showed no rise of temperature during two weeks of preliminary drainage, and passed through suprapubic operation with a rise to 100 F. for two days, followed by normal temperature throughout convalescence. The urine showed a large bacterial flora but no colon bacilli at any time during his convalescence. Five weeks later, ten days after leaving the hospital, he developed a bilateral colon epididymitis and cloudy urine. *B. coli* was obtained in culture from the urine.

Patient 6 entered the hospital with markedly overdistended bladder and beginning uremia. He was vaccinated with increasing doses of mixed vaccine (five strains), beginning at 150 millions, at intervals of four days, until he was receiving 2,500 million at a time, at which dosage he was kept throughout the eleven weeks he remained in the hospital. He was on constant drainage with inlying catheter for eight weeks. Prostatectomy was done. While his urine showed a slight haze and a few pus cells, it never contained colon bacilli; it is now entirely clear, and culture shows no growth of any variety of organism.

We recognize that our work has not been of sufficient scope to justify conclusions as to the value of colon vaccines as a preventive to colon pyelonephritis, yet our experience leads us to believe that it is more than a possibility. While the colon bacillus is not the only organism concerned in renal and bladder infections, it is the permanent infection, and if avoided the patient is usually able to handle the other bacteria.

It is our belief that the immunity conferred by colon vaccine is of short duration, probably not exceeding three or four weeks.

The administration of vaccine in prostatics should be made to extend over the period of convalescence.

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PYELITIS IN CHILDREN *

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The present knowledge on the subject of pyelitis, or pyelocystitis, of infancy and childhood is well reviewed in an article by R. M. Smith[1] of Boston published last year. Since this, the subject has also been dealt with in the papers of Kowitz,[2] Wood[3] and Fischl.[4]

As is well known, by far the commonest type of pyelitis in children is that due to bacilli of the colon-aerogenes group. The clinical picture caused by such infection of the urinary tract is clear cut, recognized generally, and will not be discussed in this place. On two aspects, however, a review of the opinions of writers shows that there exists marked lack of unanimity: the first is in regard to the method of causation of the infection; the second embraces the question of treatment. It is in regard to these points that I wish to call attention.

MODE OF INFECTION

The three methods by which the infecting organisms may reach the renal pelvis are by direct extension upward from the lower urinary passages, by the general blood stream, and by way of the lymphatics. The first method, that of upward extension, has for long held the field as the most probable and the most

* From the J. B. Brady Urological Institute, Johns Hopkins Hospital.
* Read before the Section on Genito-Urinary Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Smith, R. M.: Literature of 1913 and 1914 of Infections of the Genito-Urinary Tract in Children, Am. Jour. Dis. Child., April, 1915, p. 338.

2. Kowitz: Ueber bakterielle Erkrankungen der Harnorgane im Säuglingsalter, Jahrb. f. Kinderh., 1915, **82**, 309; München. med. Wchnschr., June 16, 1914, p. 1341.

3. Wood: Acute Pyelitis: A Cause of Obscure Fever in Infancy, Arch. Pediat., 1915, **32**, 199.

4. Fischl: Erfahrungen über Zystitis im Kindesalter, Prag. med. Wchnschr., 1915, **40**, 163.

common. Lately, however, this has been disputed, and several writers, Kowitz and Wood in particular, are of the opinion that the bacteria reach their location by way of lymphatic channels leading from the intestine directly to the kidney, or by the blood stream. The reasons for this change of feeling are, among others, that the ascending route has never yet been clearly proved, and cases are found not infrequently in which no involvement of the lower passages can be demonstrated. The same arguments here as to mode of ingress of the bacteria are in no way confined to children, but apply to adults as well. Kowitz goes so far as to assert that the infection is almost never an ascending one, but a direct result of previous intestinal involvement. He prints a most suggestive incidence curve showing that the majority of his cases occurred during the months from July to November: months during which intestinal diseases are most common in children.

It would seem that the theory of ascending infection has been losing ground of late, and it is probable that the frequency of this mode of ingress has been exaggerated in the past. There still remains, however, the well known fact of the large preponderance of girls afflicted over boys. Adherents of the ascending infection theory have always explained this by the closer proximity of the female bladder to the exterior, with resulting increased chances of infection of the child's vulva from the anus. On those who deny this mode of origin rests the burden of offering some other plausible explanation for this undoubtedly more frequent infection of girls. None has yet been suggested.

Thomson,[5] who has written two excellent papers on this subject, says on this point:

> The great preponderance of female patients seems . . . to force us to the conclusion that ascending infection by way of the urethra must be a common occurrence; and the excess of girls over boys probably represents the frequency with which urethral infection takes place. It seems very unlikely that the colon bacilli can find their way up the lumen of the male urethra. The greater prevalence of antecedent diarrhea in boys would probably cease to exist if we were able to subtract from the list of girls the primary cases infected per urethram.

He in no way denies the occurrence of cases in which the infection has had origin in the intestines and been carried thence by the blood or lymph.

PROGNOSIS AND DURATION OF THE DISEASE

Of the sixty cases collected by Jeffreys,[6] all but six were due to the colon bacillus. Fifty-three were in females, seven in males. Only twenty-one of the sixty were cured. Nine patients died: six of the urinary trouble, and three of some other disease. Six were unrelieved. Twenty-three were improved, that is, were without symptoms, but still showing pus in the urine. Kowitz gives the details of forty cases, of which fifteen patients died. Langstein,[7] on the other hand, considers that 90 per cent. of the patients recover. It is quite evident, therefore, that the actual mortality is rarely an insignificant one, and in certain localities may run as high as 37 per cent. (Kowitz). But besides this, the morbidity of the disease is considerable, some cases existing for three years or more, and ending either in recovery or with some definite nephropathy as a result of the chronic infection. Marsh[7] says that the prognosis of the disease is favorable, "but before pronouncing the patient cured the urine should not only show an absence of organisms and of pus cells, but should also be culturally free. . . . In spite of all treatment many cases become chronic; in these acute exacerbations alternate with long periods of quiescence, but the urine never becomes entirely free from pus cells and organisms."

TREATMENT

Smith says:

> The one form of treatment against which no dissenting voice is raised is the administration of large quantities of fluid. Further than this there is apparently no specific treatment. In many of the acute cases the patients get well untreated.

The English school of pediatricians advocates the so-called "alkaline" form of treatment, in which the urine is kept alkaline by the administration of potassium citrate. Others prefer to make the urine acid by giving sodium benzoate, while still others advise changing frequently the reaction of the urine by the alternate administration of these drugs. Some writers are warm advocates of hexamethylenamin; others advise salol. The use of vaccines has everywhere encountered disappointing results. But the majority opinion seems to favor the use of alkalies.

COMMENT

Such discrepancies in the clinical course of the disease, with their resulting differences of opinion as to its proper treatment, seem to me to be explained by what we know of the protean characteristics of the bacteria of the colon group. The colon bacillus, paracolon bacillus and *Bacillus lactis-aerogenes* form only the general divisions of a group of organisms showing many and often wide variations in their virulence and resistance to destructive agents. It is clear, therefore, that while in one case the administration of potassium citrate may set up conditions inimical to further growth of the infection, and thus bring about a cure, in another case such "alkaline" treatment may be entirely without avail, though here acid-producing drugs may succeed. In every case, therefore, we are logically driven to the careful examination of the biologic characteristics of the individual organism by which the patient is infected.

In this regard the recent work of Clark[8] is not only of great interest, but bids fair to go far in overcoming some of the uncertainties noted above. Together with his co-worker Lubs, he has made a large number of observations on bacteria of the colon-aerogenes family with regard to their power of gas production and also of acid production. The degrees of acidity or of alkalinity compatible with continued cultural life of the organism were measured by determining the hydrogen ion concentration of cultures at frequent periods of their growth. By these means there can be differentiated two groups of organisms, called, according to their ability to produce gas from fermentation of carbohydrates, "high" and "low ratio" cultures. Further investigation has shown that the gas

5. Thomson: On Acute Pyelitis Due to Bacillus Coli as it Occurs in Infancy, Quart. Jour. Med., 1909-1910, **3**, 251; Infection of the Urinary Tract in Children by the Colon Bacillus, Lancet, London, 1913, **2**, 467.

6. Jeffreys: Infection of the Urinary Tract in Children by Coliform Organisms, Quart. Jour. Med., 1910-1911, **4**, 267.

7. Quoted by Smith (Footnote 1).

8. Clark: The "Reaction" of Bacteriologic Culture Media, Jour. Infect. Dis., 1915, **17**, 109. Clark and Lubs: The Differentiation of Bacteria of the Colon-Aerogenes Family by the Use of Indicators, ibid., 1915, **17**, 160. Clark: The Final Hydrogen Ion Concentrations of Cultures of Bacillus Coli, Jour. Biol. Chem., 1915, **22**, 87.

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ratios of such cultures correlate perfectly with the differences in the metabolism of different species as shown by their acid production, that is, their hydrogen ion concentration. And so, by using indicators to determine the hydrogen ion concentration as developed by Sörenson,[9] instead of the more complicated electrical method, we have a simple diagnostic test which will accurately determine to which of two groups, at least, the organism under consideration belongs.

With this knowledge at hand, it should be our endeavor to regulate the reaction of the urine, either by the administration of citrate or benzoate as the case may be, so that it will be as far as possible outside the range of hydrogen ion concentration exhibited by the infecting organism. Cultures from the urine should be grown on the special mediums used by Clark and Lubs[8] from which the range of acid production can be determined. Similar observations should then be made on the urine. Comparison of these two factors will then determine in which direction the reaction of the urine should be adjusted so as to create conditions least favorable to the organism. By this means we shall be doing our utmost on a physicochemical basis to combat the continued existence of the bacteria.

Though sufficient evidence is not yet at hand to lead to a definite decision in the matter, it is my belief that the foregoing form of treatment, based on an accurate knowledge of the biologic characteristics of the infecting organism, will be followed by an increased number of complete cures. It is probably not to be expected, however, that we shall thus be able to control every case; some will still be found in a chronically infected condition, symptomless, but none the less diseased. I would strongly advocate for such chronic cases injection into the kidney pelvis of silver nitrate solution of a strength sufficient to cause a moderately sharp reaction, say from 0.5 to 1 per cent. The marked and often surprisingly quick benefit of such treatment in cases of pyelitis in adults is familiar knowledge to all present day urologists. Heretofore such treatment has not been applied to the child bearing the same type of infection. This is due to the fact that the family physician or pediatrician has felt that such instrumentation is impossible because of the small size of the urethra. In the female, however, with the exception of very young babies, the urethra is dilatable to a size to admit a No. 16 or 18 F. instrument, and cystoscopes of this size carrying a single catheter are easily constructed and handled. It will be found easier in most cases, however, to use direct catheterization through an open cystoscope, with air distention of the bladder. A general anesthetic is necessary, but this need rarely be prolonged over fifteen or twenty minutes at the most.

Though ureteral catheterization is not especially difficult in the female child, it is quite impossible through the normal urethra of the male, and in this respect it is fortunate that the disease incidence noted above shows male children to be in marked minority. It is possible, however, to reach the ureters in the male child by a median perineal section, through which, after dilation of the bladder sphincter, a small cystoscope can be passed. Though cases in which such radical treatment as this is justifiable will naturally be very infrequent, it is quite evident, nevertheless, that such operation with its temporary inconveniences is preferable to a condition of long persisting infection leading to permanently damaged kidneys.

9. Sörenson: Compt. rend. trav. de Lab. Carlsberg, 1909, **8**, cited by Clark and Lubs (Footnote 8).

CONCLUSIONS

It is to be noted that pyelitis in children is more often a serious or even fatal malady than has been thought in the past. Though female children are attacked more often than male, this difference is not so great as was held by the earlier writers. The origin of the disease seems quite surely to be from the intestinal tract in a good many cases, but the theory of infection ascending from the lower urinary tract cannot yet be entirely disproved. Medical treatment has been too haphazard heretofore. It should be based on the accurate knowledge gained by estimation of the properties of the specific infecting organism. This can be obtained by determining the hydrogen ion concentration of cultures both of the organism and of the urine. Pediatricians and internists have not yet appreciated the value and possibilities of pelvic injections. Wherever possible this should be urged in those cases in which the urinary tract does not become entirely free from infection within a reasonable time.

My two main objects in calling attention to this subject are to advocate a treatment based on the use of the newer and more accurate methods of bacteriology, and to remind our colleagues the pediatricians that for those few cases which resist this treatment, the urologist can often place at his command a method of local treatment which holds high hopes of success.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. CRABTREE AND CABOT, AND QUINBY

DR. IRVIN S. KOLL, Chicago: Dr. Crabtree verifies the findings before this section two years ago. There is only one difference, and that is his finding the bacteria in the tissues. I have been unable to isolate from the urine after twenty-four hours any of the colon bacilli after having produced an infection in the kidney, and have also been unable to get on staining any bacteria in the pelvis after twenty-four hours in those cases where I was particularly careful not to traumatize the kidney. As Dr. Crabtree also stated, I have been unable to get any of the colon bacilli in the parenchyma. I have seen a number of cases of pyelitis in pregnant women. I prefer the title "pyelitis during pregnancy," rather than "pyelitis of pregnancy." An intelligent patient who knows something of the diseases of her childhood will, in 90 per cent. of cases, tell you that she had some kidney trouble, probably a cystopyelitis, in early childhood. What does this mean? It means that all of these years she has had bacteria in the urine without any symptomatic manifestation. Possibly a microscopic examination of the urine would fail to show any pus cells, but a bacteriologic examination of the urine will show bacteria. This leads up to the point I attempted to bring out several years ago in my study of the colon infections of the kidney, namely, that a patient with pyelitis, or pyelonephritis, as I prefer to call it, should never be pronounced cured until repeated cultures taken from the urine through the ureteral catheter fail to show bacteria. As to specific therapy, I wonder if any one has made sections of a kidney in an animal following the injection of 0.5 or 1 per cent. silver nitrate to see just exactly what it does. I have not. But you know what the effect of silver nitrate is on any mucous membrane; it is distinctly corrosive, and it forms a sort of membrane over the surface. We know that the bacteria are beneath the surface, and while there is a sharp reaction, is it a beneficial one? I wonder if we do not get a great deal of destruction? I still am using the solution of aluminum acetate with the same good results that I got three or four years ago; 0.5 to 2 per cent. aluminum acetate injected into the pelvis of the kidney until you fail to get the bacteria in the urine will give good results which will be permanent.

DR. HENRY F. HELMHOLZ, Chicago: I was very much interested in what Dr. Quinby had to say about the pyelitis of infancy, and have been interested in the subject from very nearly the same point of view that he has, namely, determining the acidity or alkalinity in which the colon bacillus will grow. The point he made of titrating or determining the hydrogen concentration of the culture medium after the organism is grown is not what we are after, but to get a medium in which the organism will not grow. In a series of about twenty cases we have grown the organism isolated in broth of varying degrees of alkalinity and acidity, and in nineteen cases the range was from 2 per cent. bacteriologic acidity to 2 per cent. bacteriologic alkalinity. Only one of these organisms grew beyond that range.

DR. WILLIAM F. BRAASCH, Rochester, Minn.: In regard to the prognosis of these cases of pyelitis of infancy, my observation has been that rarely is it true that a case of chronic pyelonephritis as seen in the adult gives a history of having had any infection or ordinary trouble in infancy or childhood. I realize the fact that cases of pyelitis may occur in infancy without urinary symptoms. It is not the rule, however. So there must be a distinct difference between the pyelitis of infancy and that of the adult, because the adult rarely gets well. By treatment we can improve the condition, but it is exceptional for a patient to recover entirely, at least on cultural examination.

DR. GRANVILLE MACGOWAN, Los Angeles: I cannot agree entirely with Dr. Braasch. There are patients with pyelonephritis who get well if properly and persistently treated. I have used Dr. Koll's method but I do not think as favorably of it as I do of the use of silver nitrate, as recommended by Dr. Geraghty. Many get so well that cultures made from the urine do not show any colon bacilli, and I have seen many women with pyelitis during pregnancy giving an intermittent history of pyelitis or pyelonephritis from childhood.

DR. EDWIN BEER, New York: I would like to ask Dr. Crabtree on what he bases his conclusion that after inoculation with these colon vaccines he is really getting the benefit that he seems to think he is getting, because as I reflect on my own experience I do not find that I am troubled with repeated attacks of pyelonephritis, either after the first stage of the operation or after the prostatectomy, and it is just possible that in the Boston clinic they are getting different results now which may not be attributable to the preliminary vaccine treatment. I believe that if everybody will talk, we will probably find that there are more people who fail to see these postoperative pyelonephritides than Dr. Crabtree's report suggests. The greatest difficulty in this field to me has always been the diagnosis. In an acute case of pyelonephritis—or pyelitis, as the pediatrists call it—it is very difficult to decide as to the extent of the pathologic lesion. Is it a pyelitis per se, or is the kidney involved also? Is our patient suffering from pus foci in the parenchyma? In the acute cases I believe it is almost impossible to differentiate immediately. You will hear that the functional tests will show a marked diminution in excretion if the parenchyma is involved, but I am not sure that that is absolutely reliable. Later in the subacute or chronic stages the recognition of parenchyma involvement is simpler. I suppose one has followed the method I published eight years ago. I would like to add a note to that publication in which I called attention to the fact that methylene blue is stored in the minute parenchyma abscess and is later discharged bound to the pus, as these abscesses discharge into the pelvis of the kidney. During the last four or five years I have encountered the same phenomenon with indigocarmin.

DR. E. G. CRABTREE, Boston: In carefully followed functional tests with phenolsulphonephthalein we have noted that following decompression of kidneys which have been the seat of back pressure there is uniformly a fall in output which we attribute to congestion. It is of only a day to three or four days' duration. If the case does not become infected, the phenolsulphonephthalein output continues to rise until at the end of a week or ten days it has reached a safe, stable, operable level. However, the intervention of a pyelonephritis at any stage of the game suddenly drops the functional test down, in some cases with a previously 45 to 50 per cent. output to less than 5 per cent. The cases so infected show, as I have tried to indicate in my paper, a definite increase in agglutinating power of their serum for their colon bacillus. The patients we have vaccinated previous to operation have shown this same increased agglutinating power. They have, as a rule, run without postoperative temperature elevation, save for 99 to 100 degrees for the first two days, which is unusual following suprapubic prostatectomy. The urine in these cases has uniformly shown infection after operation with bacteria other than the colon bacillus. In some of our cases, in which we did not continue the use of vaccine throughout convalescence, the patient developed pyelonephritis or epididymitis late in convalescence, which leads us to believe that the protection afforded by colon vaccine is of short duration, three to four weeks at most.

DR. WILLIAM C. QUINBY, Baltimore: In regard to the question asked by Dr. Koll as to whether any experimental observations have been made on the injection of silver nitrate, none have been made by me because I did not think it necessary. Silver nitrate cures the patients, and that is the main point in the matter. From a histologic point of view we know that silver nitrate does cause desquamation which has been preceded by round cell infiltration and vascular congestion which the pathologist would probably call inflammation. It is during this process of reaction that the bacteria have been shown to disappear. In regard to the remarks of Dr. Helmholz, probably I did not make myself clear. I was very much interested in his remarks because they bring up the thing that I am asking you to avoid; namely not to speak of "acidity" or "alkalinity" in percentages, or in some term that you must qualify, but to use a term by which the physician or scientist will know what you are talking about. In other words "2 per cent. alkalinity" or "2 per cent. acidity" does not mean anything definite unless the details of the method by which such was determined are first explained. If you state this degree of acidity or alkalinity in terms of hydrogen ions it is analogous to saying that a patient has a temperature of 101 degrees; no qualification is necessary, and every one knows what is meant. We ought to stop this loose writing and talking. We see many statements in the literature that a patient's urine was "very acid." That does not mean anything. Let us state it as a perfectly definite degree of concentration of hydrogen ions, something which we could not do ten years ago. I was very much interested in the point brought out by Dr. Beer about the methylene blue being retained and subsequently staining. I have not had his experience with methylene blue, but I have had experience with indigocarmin.

A NEW METHOD OF ACIDOSIS THERAPY

BLOOD TRANSFUSION FROM AN ALKALINIZED DONOR, WITH REPORT OF CASE *

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It is generally believed that the alkalinity of the blood of a normal person is fairly constant and unalterable.[1] Our purpose is to show that the alkalinity of the blood of a normal person can be greatly increased by a very simple procedure, and furthermore, to point out the feasibility of such alkalinization of the blood of a normal donor to enhance its therapeutic value in blood transfusion for the treatment of acidosis.

Briefly stated, when the alkalinity of the blood is diminished through excessive acid products formed

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1. A. W. Sellards (Bull. Johns Hopkins Hosp., 1912, **23**, 289) has shown that the tolerance to alkali is higher in acidosis than in normal individuals as measured by the urine. No blood examination or blood studies were made.

during deranged intermediary metabolism, the condition is called acidosis. The acid substances are volatile fatty acids, diacetic acid, beta-oxybutyric acid and, in all probability, occasionally lactic acid. Under normal conditions these acids are completely oxidized into carbon dioxid and water. An acid reaction of the blood is known to be incompatible with life. Intermediary metabolism takes place only in a neutral or slightly alkaline medium. There is a great effort, consequently, on the part of the human economy to keep the reaction of the blood and tissues within the normal limits. The symptoms arising in acidosis are due entirely to the withdrawal of alkali from the blood and the tissues.

During catabolism the sulphur and phosphorus of the protein molecule are oxidized to sulphuric and phosphoric acids, respectively. These would acidify the blood at once, were it not for the sodium, potassium, calcium and magnesium taken in with the food, in the form of salts or organic acids, in fruits and vegetables; these salts of organic acids are oxidized to carbonates of the foregoing metals, plus water, and serve for the neutralization of the acids mentioned above, at the same time liberating carbon dioxid which is excreted by way of the lungs. When the fixed alkalies are insufficient to neutralize the acids produced, then the organism makes use of a beautiful mechanism for neutralizing the excess, as follows: Amino acids passing through the liver and muscles are deamidized, that is, the amino group (NH_2) is broken off and changed to ammonia; further, this ammonia, together with water and carbon dioxid, is converted into urea, and this is excreted by way of the kidney. If, however, the blood stream brings to the liver unneutralized sulphuric acid and phosphoric acid molecules, owing to the lack of fixed alkali, then the ammonia mentioned above neutralizes the acids, and is excreted as ammonia salts. Thus the more acids produced in the organism, the more ammonia salts and the less urea are found in the urine, and vice versa.[2] An excess ammonia in urine, therefore, does not mean an increased acidity of blood, but simply an excessive neutralization by ammonia. If, however, abnormally large amounts of acids are produced, as in pathologic conditions, in which the inorganic are augmented by the organic acids (diacetic, oxybutyric), then the limit of ammonia neutralization is exceeded, and beyond this the acids partly withdraw fixed alkalies from the tissues, partly excreted in urine as acids, and partly are left unneutralized and accumulate in the blood, producing what is known as acidosis. The most convenient method of detecting this condition is the method of Van Slyke;[3] this consists in determining the alkaline reserve of blood plasma, by means of the amount of carbon dioxid absorbed at alveolar tension.

Our problem thus being analyzed in a general way, the important question which confronts the physician and the patient is, What therapy can be offered for the relief of the condition of acidosis? The chief alkalies for the neutralization of the acid bodies are sodium, potassium and calcium, sodium being the most important. Sodium bicarbonate is the drug of choice. It is given by mouth, by rectum and, in severe conditions, intravenously. It is the rational method of treatment. But in some cases it does not work. The sodium bicarbonate can merely neutralize the acid bodies present, but does not prevent their continued development. When given by mouth, it is often vomited, and if there is persistent vomiting, as is often the case, it cannot be so administered advantageously. Given by rectum, it is irritating after prolonged use, and a catarrhal condition may follow, with the development of a complete mucous cast of the lower bowel, absorption thus being prevented. When given by hypodermoclysis, it is painful, and this procedure is often followed by subcutaneous hemorrhage. The intravenous method, while rapid, is not free of danger. Some of the sodium bicarbonate is converted into carbonate in solution. The presence of an excess of sodium carbonate may jell the blood, even though the administration be very slow.

2. Sherman and Gettler (Jour. Biol. Chem., 1912, **11**, 323) have shown that about one third of the added acids come to urine as salts of fixed alkali, about one third as ammonia salts, and that about one third are excreted as free acids.

3. Van Slyke: Proc. Soc. Exper. Biol. and Med., 1915, **12**, 7.

BLOOD TRANSFUSION

The amount of alkali in the circulation being directly proportionate to the volume of blood plasma, it follows that any increase of the plasma should be followed by an increase of the total alkaline capacity of the blood. Hence in severe cases of acidosis in which the ordinary measures have failed, blood transfusion deserves a respectful consideration. In blood transfusion, not only the plasma volume is increased, but also, necessarily, the oxygen-carrying capacity and oxidizing ferments of the blood are augmented.

Heretofore it has been considered impossible to increase the alkalinity of the blood for the reason that the alkali is excreted as rapidly as absorbed when introduced by mouth. Nevertheless we have attempted in our experiment to prove the possibility by the administration of large and frequent doses of alkali to increase the alkalinity of the blood of the donor for the blood transfusion of patients suffering from acidosis. The object of the experiment, therefore, was to test the feasibility of the introduction of alkali through the blood of the donor in its most available form with simultaneous increase of the oxygen-carrying capacity. The latter factor, as is well known, facilitates the oxidation of the fatty acids, and thus would tend to prevent the appearance of acid substances in the blood of the patient. The demonstration of the possibility of actually performing this object on man, as we have outlined above, is the aim of this paper. We consider that we have proved that the alkalinity of the blood of a normal person can be increased.

We purpose to review briefly the experiments made on donors in a study of the absorption, retention and excretion of sodium bicarbonate.

EXPERIMENTS ON DONORS

Alkalinizing of Subjects.—This work was done on three healthy young men, with negative Wassermann tests: (1) J. B., aged 28, weight 150 pounds; (2) F. K., aged 32, weight 158 pounds, and (3) W. B., aged 27, weight 180 pounds. In Case 1, 10 gm. of sodium bicarbonate was given by mouth every two hours for eight doses. In Cases 2 and 3, 20 gm. of sodium bicarbonate were given every two hours for eight doses.

Blood Taking.—About 18 c.c. of blood were removed from the median brachial vein, at five different times, at intervals as shown in Table 1. About 5 c.c. of this were used for the hydrogen ion determination, 3 c.c. for the carbon dioxid absorbability, and 10 c.c. for the total amount of bases present in the blood.

Methods of Analysis.—H Ion Content of Whole Blood: The blood was allowed to run from the needle directly into the V-shaped gas electrode containing the hydrogen gas, 0.85 per

cent. sodium chlorid solution, plus a few crystals of herudin, as proposed by Michaelis.[4] After thorough mixing by inverting cell about thirty times, the cell was connected up with standard calomel electrode, Leeds and Northrup potentiometer, very sensitive reflecting galvanometer, etc., and values read every two minutes. In every case equilibrium was obtained within ten minutes. The values obtained are recorded in Table 1.

Carbon Dioxid Absorbability of Blood Plasma.—About 3 c.c. of blood were run into a 10 c.c. Erlenmeyer flask containing a very small pinch of powdered potassium oxalate. This was then centrifuged to get a clear plasma, and used for determining how much carbon dioxid 1 c.c. of it will take up under alveolar tension according to the method of Van Slyke.[5] The more carbon dioxid a plasma takes up, the more alkaline it is. The values obtained are recorded in Table 1.

Bases Present in the Whole Blood.—About 10 c.c. of blood were allowed to run into a tared platinum dish, covered at once and weighed. This weight gives the amount of blood taken for analysis. It was placed in a drying oven over night

TABLE 1.—EXPERIMENTS IN ALKALINIZATION OF BLOOD

Time of Blood Taking	H ion P_H	Alkaline Reserve, Volume per Cent.	Mg. Bases Present as Chlorids in 100 C.c. Blood
Case 1: *			
Before first dose; 9 a. m.	7.57	63	843
2 hrs. after 4th dose; 4 p. m.	7.62	67	859
2 hrs. after 5th dose; 6 p. m., or 4 hrs. after 4th dose.....	7.56	61	847
Next day, 24 hrs. after 1st dose, or 8 hrs. after last dose.....	7.57	60	848
Case 2: †			
Before first dose.....	7.56	54	832
20 min. after 4th dose.....	7.72	89	853
40 min. after 4th dose.....	7.68	91	910
70 min. after 4th dose.....	7.62	85	846
24 hrs. after first dose, or 10 hrs. after last dose.....	7.60	77	795
Case 3: ‡			
Before first dose, 9 a. m.	7.59	59	867
20 min. after 4th dose.....	7.68	77	914
50 min. after 4th dose.....	7.66	72	883
70 min. after 4th dose.....	7.65	69	874
24 hrs. after first dose, or 10 hrs. after last dose.....	7.62	67	851

* Dosage of sodium bicarbonate, 10 gm. every 2 hrs. for 8 doses, beginning 9 a. m.

† Dosage of sodium bicarbonate, 20 gm. every 2 hrs. for 8 doses, beginning 9 a. m. Urine: NH_3 output 24 hrs. period before alkali administration, 0.709 gm. NH_3 output during a period of 24 hrs. after 1st dose of alkali, 0.692 gm.

‡ Dosage of sodium bicarbonate, 20 gm. every 2 hrs. for 8 doses, beginning 9 a. m. Urine: NH_3 output 24 hrs. period before alkali administration, 0.709 gm. NH_3 output during a period of 24 hrs. after 1st dose dose of alkali, 0.663 gm.

and was then ashed, care being taken to avoid more than a dull red heat of the platinum dish in order to prevent volatilization of alkali chlorids. When the ashing was complete, it was cooled, and leached five times with 10 c.c. portions of hot water, containing 2 drops of hydrochloric acid; it was filtered quantitatively into a small beaker; this then contained all the calcium, magnesium, sodium, potassium and iron as chlorids. Next 2 c.c. of 10 per cent. ammonium chlorid were added, made slightly alkaline with ammonium hydroxid, and allowed to stand one-half hour; this precipitated out the iron, which was filtered off. The filtrate was evaporated to dryness in a platinum dish, carefully ignited to dull redness to drive off all ammonium salts, cooled, redissolved, filtered and again evaporated and ignited at low red heat. This was then cooled in a desiccator and weighed, giving the actual amount of bases present as chlorids in the amount of blood. If an increase of bases is obtained, it must be due either directly or indirectly to sodium increase.

COMMENT

Case 1 shows very little change of the blood alkalinity by any of the three methods of estimation. There was some slight increase of alkalinity, uniform in all three methods, but not sufficient to warrant the assertion that there was an increase of blood alkalinity by alkaline therapy. It was further seen on examination of the urine that the alkali was rapidly excreted, accompanied by a great fall in the ammonia output. We suspected that the alkali may have been present in the blood in large amounts, but that the excretion was so rapid that the increase could not have been demonstrated unless an analysis of the blood had been made soon after administration, and that therefore the increase of alkalinity failed of detection. Experiments 2 and 3 were therefore planned. In Case 2, the blood was taken for analysis much sooner after the administration of the alkali, namely, twenty minutes and forty minutes after ingestion of the alkali, instead of two hours after administration, as happened in Case 1. Furthermore, the doses given were doubled. To our great satisfaction, we discovered that forty minutes after the fourth dose was taken, an increase of the alkali reserve to 37 volume per cent. was obtained.

A third experiment, Case 3, was then planned to see whether this was the maximum alkalinity or whether this maximum lay between the twenty to forty minute interval, or between the forty to seventy minute interval. Case 3 shows that such a maximum is obtained between thirty and forty minutes after administration. Beyond forty minutes it decreases rapidly. In this case the high degree of alkalinity of Case 2 was not attained, undoubtedly owing to the fact that the subject developed a watery diarrhea after the second dose, whereas Case 2 did so only after the fifth dose. The diarrhea was that of saline purgation, and hence less sodium bicarbonate was absorbed.

Summary.—1. The reaction of the blood before, during and after alkali ingestion was carefully determined by three independent methods. All tests (H ion content, alkaline reserve by carbon dioxid determination, and bases actually present) showed that the alkalinity of the blood may be appreciably raised by our method.

2. The highest increase in alkali reserve was 37 volume per cent., obtained in Case 2, or an actual increase of alkalinity of the blood of 74 per cent.

3. This maximum blood alkalinity is obtained between twenty and forty minutes after administration of alkali, reaching the greatest height in about thirty minutes. It quickly subsides thereafter.

4. In acidosis therapy with sodium bicarbonate, the alkali should be given in small doses at regular and very short intervals, rather than in large doses once or twice daily.

REPORT OF CASE

Clinical report of this case of acidosis was furnished by Dr. A. H. Ely,[5] who kindly referred the case to one of us.

History.—Mrs. M. D., aged 24, one of five children who have attained maturity, whose grandfather and father suffered from marked diabetes, was unusually intellectual, and of a highly nervous temperament. She married, May, 1914, and became pregnant following the next menstruation. Almost immediately after conception she began to be nauseated, and vomited so frequently that the case was diagnosed as one of emesis gravidarum. She was advised by a noted obstetrician in London to have pregnancy terminated. This was refused, and after being under constant medical care for four months, she returned to America and came under Dr. Ely's observa-

4. Michaelis, L.: Die Wasserstoffionenkonzentration, 1914.

5. Ely, A. H., and Lindeman, Edward: Am. Jour. Obst., 1916, 74, 42.

vation. The whole period of gestation was marked by excessive digestive disturbances, and while at no time were there definite nephritic symptoms, a varying amount of acetone and diacetic acid was found in the urine. No blood analyses were made.

In March, 1915, she was delivered of a normal child approximately at term, with normal labor and with a very small amount of chloroform. Great care was exercised in the artificial feeding of the child, yet symptoms of acidosis were present in the infant.

The patient began her second pregnancy, Sept. 1, 1915, five months after the birth of her child. The first month no untoward symptoms developed, and the urine was normal. At the beginning of the second month, however, acetone and diacetic acid were noted in the urine, and the patient continued to vomit. Her weight at this time was 122 pounds. During the course of her pregnancy and the following illness she lost 24 pounds. During October, 1915, attention was directed to the treatment of acidosis by means of large doses of alkalies by mouth and by colon irrigations, but without effect. As the pregnancy advanced, the vomiting became more and more excessive, and none of the usual means employed in cases of emesis gravidarum gave any beneficial results. It is to be noted that thorough examinations failed to find any abnormal condition in the pelvis, and that the urine contained no albumin or other indications of any lesion of the kidneys. The patient presented on the day of transfusion a picture of emaciation and profound toxemia, yet had practically a normal pulse and only slight fever or subnormal temperature. November 12, the thirteenth week of pregnancy, after consultation with Dr. E. B. Cragin, the uterus was emptied. The condition of the acidosis, however, was not ameliorated, in fact, it grew worse gradually until the situation assumed a rather grave aspect. The patient was placed on a fat-free diet; but persistence of vomiting made it impossible for her to obtain more than little nourishment.

Blood analyses were now made, and for the relief of the condition we decided to employ the syringe method of blood transfusion.[6] The blood of the donor, the husband, was chosen after appropriate tests. For sixteen hours before the transfusion, the donor was given 20 gm. of sodium bicarbonate every two hours. November 26, the transfusion was accomplished with no discomfort to the donor, and never had Dr. Ely seen such a miracle as was presented immediately in the condition of the patient. The woman, who a few minutes before had been lethargic, with gray ashen facies and waxy fingers, became interested in everything about her, the pulse changed its character completely, and with moist tongue and pink lips she asked intelligent questions.

The transfusion was done at 12:30 p. m. Four hundred c.c. of blood were removed from the patient, and 1,100 c.c. were then transfused from the husband (donor) to the patient, together with 300 c.c. of Locke's modification of Ringer's solution. The patient was fed every two hours after transfusion, and soda solution was introduced into the rectum every four hours. The patient vomited only three times in the next twenty-four hours, and after that was able to take the prescribed diet. December 2, another transfusion was done with the same donor, in the same manner as before, except that 760 c.c. were transfused and a relatively small amount of Locke's solution. No blood was removed at this time.

Blood tests made at frequent intervals have shown the blood free from acidosis and, except for a mild secondary anemia, it is normal. Convalescence has been progressive, and the patient is now able to engage in most of her usual activities.

COMMENT

In considering the figures in Table 3, the story is even more striking than the statements of the clinical course. The blood urea before transfusion ran low. A low blood urea is characteristic of a patient on a starvation diet. Before transfusion there were persistent vomiting and inability to take protein foodstuffs. After transfusion, vomiting ceased, and concomitantly there was increased tolerance and ingestion of protein foodstuffs. This was followed by an increase in blood urea. December 20, a month after transfusion, the blood urea had increased to 32 mg. per hundred c.c. volume, which is three times the amount present during the starvation period. The patient was considerably emaciated because of her starvation period. She was put on a high protein diet and began to gain weight rapidly; hence the high nitrogen figures of December 20.

The uric acid figures fall within the normal limits.

The creatinin may also be regarded within normal limits.

The blood ammonia, unfortunately, was not determined before transfusion, but we have reason to suppose that it was very high. Three days after trans-

TABLE 2.—URINARY FINDINGS IN THE CASE REPORTED

Date	Reaction	Specific Gravity	Albumin	Sugar	Acetone	Diacetic Acid	Indican	Urea, %	Microscopic			
10/ 5/15	Faintly acid	1.009	Absent	Absent	Absent	Absent	Trace	0.6	Many epithelial cells; few white blood cells			
10/13/15	Neutral	1.008	Absent	Absent	Absent	Absent	Absent	0.6	Few epithelial cells and white blood cells; calcium oxalate			
10/19/15	Consid. acid	1.020	Faint trace	Absent	Faint reaction	Faint reaction	Absent	0.9	Many epithelial cells and white blood cells			
10/22/15	Faintly acid	1.015	Absent	Absent	Faint reaction	Absent	Absent	1.2	Many epithelial cells and white blood cells			
10/25/15	Consid. acid	1.030	Faint trace	Absent	Marked reaction	Marked reaction	Absent	2.5	Considerable amount of phosphates and urates			
10/29/15	Faintly acid	1.026	Faint trace	Absent	Faint reaction	Faint reaction	Absent	2.2				
11/ 5/15	Alkaline	1.020	Absent	Absent	Marked reaction	Marked reaction	Absent	1.7				
11/ 8/15	Alkaline	1.020	Absent	Absent	Marked reaction	Marked reaction	Marked	1.4	Abundance of epithelial cells			
									NH_3 %	NaCl%	Micro.	Blood
11/22/15	Acid +++	1.020	+	—	+++	+++	—	1.2	0.072	....	Pus +++	—
11/23/15	Acid +	1.020	+	—	+++	+++	—	1.3	.....	....	—	+++
11/24/15*	Acid +	1.010	+	—	+++	+++	—	0.5	0.053	....	—	
11/29/15†	Acid +	1.009	+	—	+++	+++	—	0.21	0.037	....	—	
11/29/15 5 p. m. 11/30/15	Alkaline +	1.030	+	—	+++	+++	—	0.34	0.0094	....	—	
10 a. m.	Alk. +++	1.012	+	—	+++	+++	—	1.0	0.25	....	—	
12/ 2/15*	Alk. +++	1.015	—	—	—	—	—	0.9				
12/ 2/15†	Alk. +++	1.015	—	—	—	—	—	1.2				
12/ 6/15	Acid +	1.010	—	—	—	—	—	1.0				
12/10/15	Acid +	1.024	—	—	—	—	—	2.8	0.016	0.25		
Normal average								2.0	0.07			

* Before transfusion. † After transfusion.

6. Lindeman, Edward: Simple Syringe Transfusion with Special Cannulas, Am. Jour. Dis. Child., July, 1913, p. 28.

fusion it was practically twice as high as the upper limit of normal. On this day the urine for the first time was alkaline, although the acetone bodies were still present. The high ammonia in the presence of low protein diet must be explained in one or two ways or both:

1. The ammonia from endogenous metabolism is drawn on to neutralize acid before it can be built up into urea by the liver.

2. The liver may be so diseased that it is unable to build up into urea the amount of ammonia that is offered to it.

3. Both factors may prevail.

December 20, though the patient was on a high nitrogenous diet, the blood ammonia was below normal, the actual quantity approximating one-half the lower normal limit.

The most important and perhaps the most interesting figures in the table are those of the carbon dioxid percentage content of the plasma.

The available alkali of the blood is in the form of sodium bicarbonate, and is present practically in its entirety in the plasma. The alkalinity of the blood was determined by the estimation of the amount of carbon dioxid (gaseous) that can be liberated from the plasma (Van Slyke).

TABLE 3.—BLOOD FINDINGS IN THE CASE REPORTED

Date	Milligrams per Hundred C.c. of Blood						
	Urea	Uric Acid	Creatinin	NH_3	NaCl, %	Sugar	Alkaline Reserve Vol. per Cent.
Before transfusion from alkalinized donor							
11/22	9.00	.....	.....	.....	.....	50	43
11/28	9.00	1.3	0.2	.....	0.66	77	
After transfusion							
11/29	10.4	0.82	0.2	1.50	0.46	80	82
12/20	22.0	1.4	0.8	0.2	0.587	33	76
Normal av...	12-16	1-2	0.1-0.4	0.4-0.9	0.6	60-110	53-83

It has been found that where the carbon dioxid content of the plasma is below 53 per cent., the patient develops a state of acidosis. Above 53 per cent. no state of acidosis prevails.

Before transfusion, in the case under discussion, the carbon dioxid plasma content was 43 per cent.; after transfusion the plasma content of carbon dioxid was 82 per cent. This marked increase cannot be regarded in the light of the simple law of averages after transfusion, because the normal average is between 53 and 77 per cent. One must conclude that something more than an averaging of the alkalinity of two mixtures had taken place: that not only had alkali been administered in the most available form, but also by transfusion the acid bodies actually formed and responsible for the disease had been diminished at their source.

CONCLUSIONS

1. The generally accepted routine of frequent urinary analyses during the whole period of pregnancy in private cases should be supplemented by analyses of the blood, since it is a more accurate test in the determination of the condition of the patient.

2. Not only should the blood of the donor and the recipient be compatible, but also, as illustrated by this case of acidosis, in which for the first time so far as known the donor has been prealkalinized, the blood of the donor should be alkalinized by large doses of sodium bicarbonate before transfusion.

3. By the method of syringe transfusion we have a comparatively simple and safe means of treatment which produces results not found with other known methods.

4. The timely use of this treatment may obviate the necessity of emptying the uterus in cases of acute and severe acidosis complicating pregnancy, and may be employed in other severe conditions of acidosis not complicated by pregnancy.

5. In alkalinizing the blood of a donor for blood transfusion in a given case, the blood should be transfused about one-half hour after administration of the last dose.

HEMATURIA

A CLINICAL STUDY *

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This clinical report is based on a study of 238 consecutive cases of blood in the urine. Only those cases in which the presence of blood was apparent to the naked eye are included. Cases in which the hematuria was due to gonorrheal urethritis, the passage of sounds or injury to the urethra are not included. Essential hematuria, idiopathic renal hemorrhage, etc., will not be considered, as they have been dealt with in other publications.[1]

Hematuria, with but very few exceptions, means the presence of organic disease in the urinary tract. The importance of hematuria as a symptom cannot be too strongly emphasized, and it is most unfortunate that its importance is so often disregarded and belittled by both patient and physician. Very often the hematuria is painless, and, not infrequently, symptomless, so that an accurate diagnosis from the presence of this symptom alone is not possible. Instead of making an accurate diagnosis, vague and indefinite terms are used in describing the hematuria, and various styptic drugs are administered, after which both patient and physician *wait* for the bleeding to stop. This is but another of the many forms of medical procrastination, and it must be discouraged. Rather than treat hematuria symptomatically, it is by far a much wiser procedure to establish the origin, and to determine the cause of it, in each instance, as far as possible.

The importance of making an early diagnosis in each and every case is particularly significant, if we bear in mind the large number of cases due to new growths and tuberculosis, and it is especially in these groups of cases that an early diagnosis must be made in order to obtain the best end-results. Many of the patients in this series gave a history of hematuria of several years' duration before they were subjected to a thorough and complete examination.

With the modern methods of diagnosis, the origin and cause of urinary hemorrhage can be ascertained in a very large majority of cases. It may not always be possible to make a definite diagnosis by a single, or even several, cystoscopic examinations, or by employ-

* Read before the Section on Genito-Urinary Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Kretschmer, H. L.: Ztschr. f. Urol., 1907, 1, 490; Surg., Gynec., and Obst., January, 1913, p. 34.

ing *one* of the various methods of diagnosis; in a certain number of cases it may be necessary to resort to all methods of diagnosis before the desired information is obtained.

The value of clinical observation, extending over long periods of time, was illustrated in several cases of profuse, symptomless hematuria in which no apparent cause was demonstrated; subsequent observations proved the presence of nephritis. Profuse, painless hematuria may be the initial symptom of nephritis. In another group of cases in which at first no diagnosis, or only a tentative one, was made, further observation demonstrated the presence of renal tuberculosis. Because of the occasional difficulty in demonstrating tubercle bacilli in the sediment of urine containing a large amount of blood, we now make it a routine in all obscure cases of hematuria, and in all cases in which tuberculosis is suspected, to inject guinea-pigs. In this way we were able to make an early diagnosis of renal tuberculosis in cases that might have gone unrecognized. Because of the possibility of tuberculosis being masked by a colon bacillus infection, this has particular significance, for in several cases in which a provisional diagnosis of hemorrhage due to colon bacillus infection was made, the guinea-pigs showed tuberculosis.

For purposes of study the cases were divided into the following three groups:

1. Cases in which a positive diagnosis was made.
2. Cases in which the origin of the bleeding was determined.
3. Cases in which neither cause nor origin was determined.

CASES IN WHICH AN ACCURATE DIAGNOSIS WAS MADE

An accurate diagnosis was made in 197 cases. The various lesions found are given in the accompanying tabulations:

LESIONS OF THE KIDNEY

	No. of Cases
Renal tuberculosis	23
Nephritis	12
Renal calculus	8
Hypernephroma	8
Colon bacillus infection	8
Renal tumor	2
Polycystic disease	2
Trauma	2
Hydronephrosis	2
Renal carcinoma	2
Pyonephrosis	1
Movable kidney	1
Pregnancy	1
Doubtful stone	1
Oxaluria	1
Total	74

LESIONS OF THE BLADDER

	No. of Cases
Carcinoma	32
Papilloma	26
Calculus	14
Bladder tuberculosis	10
Diverticulas	2
Angioma	1
Polypi	1
Total	86

LESIONS OF THE PROSTATE

	No. of Cases
Carcinoma	12
Hypertrophy	13
Total	25

LESIONS OF THE URETER

	No. of Cases
Calculus	10

LESIONS OF THE FEMALE URETHRA

	No. of Cases
Prolapse	1
Tumor	1
Total	2

An analysis of this series of 197 cases showed that tumor formation was the most frequent single cause of bleeding. Tumors of the bladder were responsible for bleeding sixty times, or in about 30 per cent. There were twenty-five lesions of the prostate, of which twelve were carcinomatous and thirteen were benign hypertrophy. There was one urethral tumor (female).

Tuberculosis was second in point of frequency, there being thirty-three cases of renal and vesical tuberculosis. The cases of vesical tuberculosis include those in which nephrectomy had been performed and those in which the tuberculosis was secondary to lesions in the genital tract.

New formations of the kidney are third in point of frequency, being less frequently the cause of bleeding than tuberculosis or nephritis. Of the seventy-four renal lesions, tumor was found twelve times.

If we include, with the new growths, prostatic enlargement and carcinoma, there were ninety-nine cases in which the hematuria was due to new growths, or approximately 50 per cent. of the positive cases in this series.

Calculi of the urinary tract were the next most frequent lesion found. A total of thirty-two cases were divided as follows: kidney, eight; ureter, ten, and bladder, fourteen.

The great importance of subjecting this group of cases to a careful and thorough examination in order to obtain a cure is apparent at once. This fact is one that is not appreciated by the general practitioner, who usually sees and treats these cases first. In one case the patient had his initial hematuria twenty years before a cystoscopic examination was made, and in another case fifteen years had elapsed. Not infrequently the patients were told by their physicians that the hematuria was of no significance, and were given internal treatment, and that there was no importance to be attached to this symptom. In several of these cases hopeless carcinomas were found.

CASES IN WHICH THE ORIGIN WAS DETERMINED, BUT NOT THE CAUSE

Renal lesions, as is well known, may bleed intermittently. If the patient is examined during the free interval, it may be impossible to establish the origin of the hematuria by cystoscopic examination, unless this shows changes in or around one ureteral orifice.

In fourteen cases the origin was determined, but the cause was not definitely established. An analysis of these cases shows that there were three females and eleven males. The origin of the bleeding was determined either by ureteral catheterization or by plain cystoscopic examination, which revealed bloody urine being emitted from one ureteral orifice.

It is well to bear in mind the possibility of the existence of a bilateral lesion in some of these obscure cases. That only one side is bleeding at the time of cystoscopic examination does not exclude such a possibility. In several instances in which more than one cystoscopic examination was made, first one side and then the opposite were found to be the source of the bleeding. Three of these fourteen patients were operated on. They were operated on elsewhere, and no tissue was excised for pathologic examination. This should be a routine procedure in each case subjected to operation, in which no gross pathologic condition is found at the time of operation. The remaining

patients were subjected to Roentgen-ray examination, bacteriologic examinations of the urine, etc. In three of the cases pyelography was carried out without giving any additional information. One of these patients, a woman, had a blood pressure of 225 mm., and it may be possible that the hematuria in this case was associated with the high blood pressure. In two cases the bleeding was bilateral.

Several of these cases were seen before pyelography and cultures of the urine were carried out as a routine, and it is quite possible that these may have been of value in clearing up the cause of the bleeding in at least some of the cases in this group.

Four of the cases were treated by intrapelvic injections of epinephrin. In three the bleeding ceased, and in one the epinephrin had no effect.

CASES IN WHICH THE ORIGIN WAS NOT DETERMINED

This must naturally form an interesting and important group of cases, for in them neither a diagnosis was made nor the origin of the bleeding determined, except that in most of them the bladder as a possible source was excluded by cystoscopy. There were twenty-five cases in this group.

An analysis of this group showed that five of the twenty-five patients refused instrumental examination. The remaining twenty patients presented themselves at a time during which their urine was free from blood. Cystoscopic examination failed to demonstrate changes about the ureteral orifices that might have been helpful in determining whether the bleeding came from the right or left side. In one of the patients, cystoscopy could not be carried out because of the presence of urethral strictures. In six cases complete examinations were made. Cystoscopic examination, ureteral catheterization, cultures of the urine, Roentgen-ray examination and pyelography were completely negative. One patient, although not bleeding at the time of the examination, showed pure cultures of streptococci from the kidney urine. In one case a few granular casts were found; otherwise the examination was completely negative.

I do not think one is justified in assuming that these six cases belong to the group of "essential hematuria," because no cause for the bleeding was demonstrated; but that they are the expressions of our present diagnostic limitations, and that they should be subjected to further clinical observation. The remaining cases in this group, for various reasons, were not subjected to a complete examination, and hence their etiology was not determined.

Regarding the incidence of sex: Of the thirty-two patients with carcinoma of the bladder, twenty-three were male and nine were female. Of the twenty-six patients with bladder papilloma, nineteen were male and seven were female. Thirteen cases of bladder calculus occurred in the male and one in the female. All the cases of ureteral stone were in the male, as were all of the cases of tuberculosis of the bladder. Kidney tuberculosis was found more frequently in the female. The patients having ureteral stone were all male, and all of the cases of nephritis with the exception of one were found in the male.

The youngest patient was 5 years old and the oldest 84.

CONCLUSIONS

1. A study of these 238 cases demonstrates that stone, tumor and tuberculosis are the three most frequent causes of profuse urinary hemorrhage.

2. Because of the frequent occurrence of hematuria as a symptom of tumor formation in the urinary tract, this possibility should be considered in each case of profuse painless hematuria, until such possibility is definitely excluded.

3. The doctrine of essential hematuria has worked incalculable harm, and must be discouraged. Only too often it is used as a cloak for ignorance.

4. The importance of hematuria and the necessity for determining its cause must be impressed on each patient suffering with urinary hemorrhage.

122 South Michigan Avenue.

ABSTRACT OF DISCUSSION

DR. WILLIAM F. BRAASCH, Rochester, Minn.: As Dr. Kretschmer called our attention to the fact that hematuria means malignancy in a high percentage of cases, hematuria and malignancy should in the minds of the laity be regarded as synonymous. This fact has been brought out by others. In spite of all that has been written and said before the medical profession and the laity that they should regard it as they do a tumor of the breast, it is remarkable the large number of cases of hematuria we observe existing for a number of years without any attempt being made to ascertain their source. It shows that some of us are not doing our duty. Whether or not the malignancy is in the bladder or in the kidney is of secondary importance; the fact that it can be there is the all important thing. Of course, as Dr. Kretschmer pointed out, hematuria may be due to a great variety of causes, but we should always exclude that first. Dr. Kretschmer called attention to the fact that the term "essential hematuria" should not be used. While that is a very poor term, there unquestionably is a nonmalignant condition, which causes renal hematuria, of which we have not yet discovered the etiology. In my opinion many of them are due to chronic insidious infections confined around the papillae. I have seen a number of cases. The term "essential hematuria" must be retained for the want of a better term.

DR. MARTIN KROTOSZYNER, San Francisco: I wish to report an interesting observation, illustrating the point that was brought out in Dr. Kretschmer's paper. A man of 81, with intermittent attacks of painless and copious hematuria, was observed at the hospital during a period of six months. The attacks occurred at intervals of about ten to twenty days, lasting not longer than forty-eight hours, and were traced to a focus in the left kidney. Palpation was negative. There was no marked difference in renal function on the affected side. A tentative diagnosis of malignancy of the left kidney was made. The patient refused operation. At the necropsy a small uric acid calculus was found, floating in the moderately enlarged renal pelvis of the left kidney. Hematuria, in all probability, had been due to erosion of a blood vessel by the rough calculus.

DR. C. M. HARPSTER, Toledo, Ohio: I have encountered two cases of anomalous vessels going to the pelvis of the kidney. In both of these the bleeding was so violent that I did a nephrectomy. In one of them I found the anomalous vessel was divided into three branches coming to the upper pole. In the second case there was a single anomalous vessel going to the lower pole. I do not know how to explain the intense hemorrhage which took place here unless it was some interference with or obstruction of the ureter itself. In the first case I encountered the bleeding was so violent when the kidney was removed that I made a blind plunge and secured vessels. If Dr. Kretschmer can tell me why these kidneys bled so I will appreciate it.

DR. R. L. PAYNE, JR., Norfolk, Va.: The ratio incidence of hemorrhage with reference to malignancy and other causes was very instructive. It is the unsolved problem of symptomless unilateral hematuria, however, that should interest us more than the stereotyped varieties that we are all recognizing. I have been interested in this symptomless hematuria for about four and a half years, and have done a lot of experimental work. We have had eleven cases in the human, and we believe that we can show that there was some form of active

nephritis. In the first eight cases nephrotomies were done, and sections were made from the cortex only. These sections all showed some form of chronic inflammatory reaction which we were able to call, in one form or another, an interstitial or a glomerular nephritis. Fifteen months ago we did our first nephrectomy in one of these cases. In this kidney we found a condition which probably led us to understand for the first time how these kidneys bleed. In other words, we were able to show the definite location of chronic inflammatory changes to be in the midzone and in the pyramids and the straight veins of the pelvis and that here was the actual source of the hemorrhage. In other words, we were able to demonstrate in this kidney the actual ruptured vessels on the very surface of a papilla. Since that time we have had two other human cases, one of our own and one that was removed by another surgeon and sent to us for study, which showed identically the same conditions. Many of these cases have been reported as a nephritis, or a lot of these cases from which a small section was removed from the cortex and nothing found would probably fall in this category, and that explains why so few of these cases were cleared up from a causative viewpoint. In our cases a definite obstruction of the veins was present. In the cortex there is absolutely no change, or very little, if any. In the midzone there has occurred a definite obstruction of the veins as follows: In some areas when the sections were taken from the cortex completely down through the papilla we were able to show a primary recent focus of infection, as evidenced by polymorphonuclear leukocytes, fibrin and red blood cells. In the same section adjoining this we are able to show where some of these acute focal infections have healed, with the deposition of fibrous tissue. Adjoining and in these sections of chronic inflammatory deposits there are large and hugely dilated venules, the straight veins coming up from the papillae, and we believe that it is this obstruction in the midzone and pyramids that is causing the hemorrhage in these cases. Farther down toward the papillae from the midzone we have been able to show in these cases a considerable increase in the dilatation of the venules, and actually to demonstrate the ruptured capillaries on the surface of the papillae. It is very simple to produce an experimental nephritis in the dog, but it is difficult to produce a hematuria more or less analogous to the one we are talking about. We have attempted to secure this condition in a large number of dogs, and in six dogs we have produced hematuria; and the pathologic findings coincide with the lesions found in the human kidney, namely, no change in the cortex, an overgrowth of chronic inflammatory tissue in the midzone, with an obstruction to the return venous flow from the pyramid and resulting rupture of the veins with hemorrhage.

DR. I. SIMONS, Nashville, Tenn.: In regard to hematuria from one single kidney, I encountered one case which, while it is not unique, seems to be of some interest. The patient was about five months pregnant. She had had what was apparently a pyelitis on the right side. She had pain, chills, fever and sweats. On the day that I saw her she began to bleed very profusely. On cystoscopy, to my extreme surprise, I found the hemorrhage coming from the left side. Catheterization of the right ureter showed some pus and colon bacillus in pure culture. The blood was seen spurting out of the left ureter three or four times, and at that point I passed the catheter up the left ureter. No urine appeared at all. I intended to wash the right kidney, but on account of the fact that there was no secretion on the left side, I desisted. The patient immediately began to improve, without washing the pelvis at all, but was put on vaccine and promptly recovered, so that she was able to leave the hospital within a month and a half. I believe it is possible to get an acute sympathetic congestion of one kidney due to a lesion in the other kidney, although it is possible that there may have been an inflammatory condition of a transient nature in the bleeding kidney.

DR. H. L. KRETSCHMER, Chicago: The object of my paper was not to dwell on essential hematuria so much as to bring out the point Dr. Braasch mentioned, namely, that a campaign of education should be started to call the attention not only of physicians but also of the laity to the importance of hematuria as a symptom. The term "essential hematuria" is simply an expression of our diagnostic limitations. I do not believe we are justified in saying that there is no cause present to account for the hemorrhage because we cannot find one. Dr. Payne said that his patient had pain on the right side and bleeding on the left side. In my paper I called attention to the fact that some of the patients had bilateral lesions, and that only one side was bleeding at the time of examination. I believe it is possible that his patient had a bilateral infection, but at the time he cystoscoped her, only one kidney was bleeding. I do not know why Dr. Harpster's patient was bleeding.

ROUTINE SPINAL ANALGESIA

WITH REPORT OF 6,229 CASES

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In 1909 when work on the Panama Canal was being vigorously pushed, Hospital Santo Tomas, the government hospital of the Republic of Panama, found its admissions increasing rapidly without a corresponding increase in equipment and assistance. For this reason more than others, the surgical staff began the use of spinal anesthesia. Since that time it has been used as a routine procedure, except when contraindicated, for all surgical operations below the umbilicus. It has been used frequently for operations on the upper abdomen and rarely for higher regions of the body. The administration of the anesthetic has not been restricted to any one or to any set of operators, but has been used by new interns. In all, twenty-seven different physicians have contributed to this series of cases. This, of course, is not conducive to the best results, but the opportunity to review results under these conditions is interesting and instructive.

The majority of our patients are West Indian negroes and native Panamanians of the poorer classes, of low mentality, and are by no means neurotic in tendency. They submit to operation with a minimum of mental distress. These factors are of great importance in this method. We have found spinal analgesia much less satisfactory on white American and European patients than on those spoken of above. They seem to require a smaller dose to bring on toxic manifestations, they are much more apprehensive, and unfavorable postoperative effects are more frequent and more severe. To children under 5 years of age we usually give a general anesthetic, although we have used spinal analgesia on children as young as 1 year. Patients in a state of shock from hemorrhage or other cause, and patients with a very low blood pressure from any cause have not been chosen for spinal anesthesia.

In addition we have chosen not to use spinal analgesia on any patients who were prejudiced against the method, in extremely nervous patients, in patients having marked spinal deformity or diseases involving the spinal cord or peripheral nerves, or in patients having a superficial infection near the site for puncture.

In the beginning, many different drugs were tried, both separately and in combination, and with the addition of strychnin and epinephrin. We have obtained the most consistently good results with the following preparation, so that we now use it exclusively:

	Ampule	
	0.5 c.c.	1 c.c.
Stovain	0.05 gm.	0.1 gm.
Sodium chlorid	0.05 gm.	0.1 gm.
Distilled water	0.5 c.c.	1 c.c.

DOSAGE AND TECHNIC

Formerly in long operations we gave an average dose of 0.085 gm., with a maximum of 0.1 gm. in very robust persons. In the last two years we have cut down the dose to an average of 0.07 gm., with a maximum of 0.085 gm. It seems unwise to exceed this, on account of the high percentage of patients who vomit and show other toxic symptoms if a larger dose is given. The duration of anesthesia will usually bear a direct relation to the dose; hence we vary the dose according to the amount of time required for the operation. For operations requiring one-half hour or less, 5 cg. are given. For longer operations the dose is increased proportionately.

For operations below the symphysis pubis, the spaces between the third and fourth or fourth and fifth lumbar vertebrae are chosen. The solution will in most cases gravitate to the sacral curve, and analgesia will be confined to parts below the umbilicus. When it is especially important that there shall be no diffusion upward, the injection is given between the third and fourth in the sitting position, the patient being allowed to remain in that position for about three minutes. Ordinarily the injection is done with the patient lying on his left side. For anything above the pubis, the spaces between the second and third or first and second are chosen. We have found that our solution injected into the first or second space will usually gravitate to the middle of the dorsal curve with the patient in the recumbent position, and that the average limit of analgesia is a little above the tip of the ensiform cartilage. If the head of the table is slightly lowered, immediately after the injection, the anesthesia will be more profound, and more lasting in the upper abdomen. Practically all the operations on the upper abdomen and chest have been done successfully with this technic. When we have anticipated the necessity for a long operation in the upper abdomen, we have injected the area of the cord directly supplying the operative field, as suggested by Babcock.

RESULTS

Failures.—We are unable to give a statement of the percentage of failures for the entire series because the records are not complete in this respect. Following all cases for a period of three months in the present year we note the following:

In 226 consecutive cases injected by one having had a large experience in the method, there was one complete and one partial failure, about 0.8 per cent. In 479 cases injected by six different physicians there were sixteen complete failures, nine partial failures and four repeated injections, about 6.25 per cent. failures. A complete failure is considered one in which pain sense and motor control are not lost, making it impossible to operate. In partial failure there is some loss of pain sense and motor control, but not sufficient for painless operation. The injection is repeated when there has been a complete failure, if it will not cause too much inconvenience. It is not dangerous to repeat the injection; but if the operative field has been prepared in the mean time, one hesitates to disturb everything and turn the patient on his side for a second injection. In this case we usually give a general anesthetic. Practically all failures are the result of errors in technic and improperly prepared or deteriorated solutions.

Favorable and Unfavorable Features During Operations.—The most gratifying features at the time of the operation are the complete muscular relaxation and the contracted condition of the intestine. It is possible to perform extensive pelvic operations through a very small incision. The intestine can be separated from the operative field with a minimum of handling. This probably accounts for the fact that we see much less postoperative distention after spinal analgesia than after ether narcosis. The complete relaxation of the sphincter ani is a distinct advantage in operations on the rectum and anus. There is no operative shock in extra-abdominal or pelvic operations.

In operations below the pubis in which the usual dose is 0.05 gm., a little over 1 per cent. of the patients vomit. In abdominal operations below the umbilicus in which the Trendelenburg position is not used, 4 per cent. vomit. In the same class of cases in which the Trendelenburg position is used, a little over 9 per cent. vomit. The vomiting is preceded by nausea, restlessness, sweating, pallor, faintness and air hunger. One or more of these symptoms may be present without vomiting. We have repeatedly verified the fact that these symptoms begin to appear in from twelve to twenty-five minutes after the injection. This corresponds to the time when the drop in blood pressure has reached its lowest point. Ordinarily all these symptoms pass off in a few minutes without treatment. They are more quickly dissipated by strychnin, caffein or respired ether, and in severe cases by the intravenous injection of physiologic sodium chlorid solution containing from 5 to 10 minims of epinephrin solution. These symptoms are probably due to too rapid diffusion of the drug to the medullary centers.

On three occasions it has been necessary to stop the operation temporarily on account of respiratory failure. Artificial respiration was begun and continued in each case until the patient was able to breathe. In one of the cases it was necessary to continue the artificial respiration fifty minutes. (In this case we were trying Jonnesco's method. The patient was operated on for tuberculosis of the cervical glands.) All three patients recovered, and the operation was completed in each case without a general anesthetic.

With our system of dosage for operations in the pelvis the average duration of anesthesia is fifty minutes. The limits of duration are from twenty minutes to one hour and forty minutes. Too short duration of anesthesia has been a distinct disadvantage in some cases, necessitating a supplementary general anesthetic.

We have noticed at times a loss of pain sense without loss of motor control. In this case absence of relaxation might be an objectionable feature.

It has been necessary on a few occasions to render the patient unconscious with a general anesthetic on account of extreme nervousness, even when the injection had been otherwise a success.

After-Effects.—Vomiting is a very uncommon after-effect. It has been noted at times in conjunction with symptoms of meningismus, occurring usually about the third day. If postoperative vomiting occurs, it can usually be traced to some definite cause other than that of the anesthetic.

Mild headache and backache occurred in about 20 per cent. of the cases. They yield readily to the usual headache remedies. The severer type of headache associated with vertigo, severe backache, stiff neck, etc., is much less frequent. In our wards it occurs in about 1 per cent. of cases. It is due to slight hemorrhage into the subarachnoid space from faulty

puncture. We believe that the condition is an aseptic inflammation of the meninges, due to the presence of a foreign body (blood) in the cerebrospinal fluid. The most effective treatment is repeated spinal puncture, from 10 to 25 c.c. of cerebrospinal fluid being drawn off each time. Symptoms usually last from five to eight days, but may continue in a milder degree from two to three weeks. Vertigo is usually the last symptom to disappear. Headaches from deteriorated solutions are much milder than this type, and usually occur in groups.

Temporary loss of vesical control is fairly frequent, following operations on the rectum and perineum. We have never observed a permanent loss of anal or vesical sphincteric control. In the last 3,000 cases there have been two cases in which vesical control was absent for more than two weeks. Similar cases are not infrequent following general anesthetics.

OPERATIONS PERFORMED UNDER SPINAL ANALGESIA IN SANTO TOMAS HOSPITAL, 1909-1916 *

	No.
Chest:	
Wire for fracture	3
Liver abscess	12
Empyema	3
Wounds	2
Abdomen:	
Gastro-enterostomy	2
Tumors	17
Wounds of stomach	4
Fistulas	7
Exploratory	9
Splenectomy	4
Splenopexy	2
Intestine:	
Suture	6
Resection	12
Short circuit	3
Obstruction	14
Meckel's diverticulum	2
Intussusception	3
Fecal fistula	8
Ulcer	1
Tuberculous peritonitis	9
Peritonitis, other forms	12
Appendectomy	451
Prolapse rectum	8
Stricture rectum	37
Hemorrhoids	264
Fistula in ano	97
Cholecystotomy	3
Kidneys:	
Nephropexy	8
Nephrectomy	3
Ureters plastic	1
Gynecology:	
Hysterectomy	341
Myomectomy	10
Tubes and ovaries	513
Suspension of uterus	126
Perineorrhaphy	48
Curettage of uterus	384
Operations on cervix	28
Rectovaginal fistula	5
Vesicovaginal fistula	4
Hernia:	
Inguinal	687
Femoral	17
Ventral	30
Umbilical	6
Epigastric	2
Genito-Urinary:	
Inguinal adenitis	330
Circumcision	377
Internal urethrotomy	180
External urethrotomy	135
Hydrocele	201
Prostate (infrequent)	7
Amputation of penis	15
Varicocele	18
Testicle	21
Plastic on urethra	9
Extremities:	
Amputation	98
Fracture:	
Wire	18
Plate	13
Graft	7
Nail	2
Cast	90
Infections	482
Ulcers	362
Varicose veins	9
Wounds	66
Tumors	58
Osteomyelitis	42
Arthroplasty	4
Popliteal aneurysm	2
Aspiration of joints	20
Club feet	5
Cystoscopies, examination of fractures, vaginal examination, repeated injections, emergency wounds, etc.	529
Total	6,229

* In many cases more than one operation was done. Each number represents a separate patient.

In three cases we have noticed symptoms pointing to direct injury of one or more branches of the cauda equina. The patients have complained of pain, followed by parasthesias and anesthesia over a limited area of the buttocks or legs. All have been unilateral. All three were improving at the time when they left the hospital. There was no disability.

It is impossible for us to have an efficient follow up system in this country, so that some of the late after-effects might escape our observation. But this hospital is the only charity hospital in the Republic of Panama, and it is safe to assume that if a patient developed anything of a serious nature he would almost certainly return to us.

We have observed no case in which there was a permanent paralysis of any kind. We have never seen gangrene of any structure resulting from spinal analgesia.

There have been no cases of meningitis developing after the puncture. No case has been observed in which the puncture seems to have caused a point of lowered resistance, for the development of tuberculous or other forms of meningitis or any other spinal lesion.

In view of the reported frequency of ocular palsy, namely, 1:400, we are at a loss to understand why we have not observed this condition in a single case. It is possible that in the earlier part of the series some cases may have escaped our attention; but in the past four years when the cases have been more carefully observed, we have not encountered a single case. As it is said to occur from seven to thirteen days after injection, some cases may have developed after the patients had been discharged from the hospital.

One patient developed a marked degree of mental derangement which lasted fifteen days, after which she recovered completely. She had undergone a pan-hysterectomy.

Deaths.—There have been four deaths in which spinal analgesia has been a factor. In only one did it seem to be the sole cause of death:

A young woman was given 0.075 gm. of stovain in the second lumbar space for an operation for retroversion. In the midst of the operation she gradually went into marked collapse, and the radial pulse could not be felt. There was no respiratory paralysis. Ten minims of epinephrin solution in 0.5 liter of normal saline were given slowly intravenously. The symptoms of collapse quickly disappeared, and the radial pulse became strong and full. The operation was completed, and the patient was sent to the ward in fair condition. Twenty minutes later she was found in collapse again. The same treatment was given with prompt improvement. After the immediate effects of the epinephrin had worn off the pulse became very slow and very weak. Stimulants were given, with slight improvement. In the afternoon, four and one-half hours after the operation, the patient again went into collapse. Epinephrin was given but with very slight beneficial effect. The pulse became weaker and slower until death, about twenty minutes after the last injection of epinephrin.

We feel that this death was due to too rapid diffusion of the stovain to the higher centers, on account of placing the patient too quickly in the Trendelenburg position. We have observed two other cases in a similar condition of collapse. Both patients, however, recovered.

A second death occurred in a strong, healthy man who was about to be circumcised. After the spinal needle had entered the subarachnoid space there was a scant flow of fluid. The patient was (unfortunately) instructed to cough, and fluid spurted from the needle. The patient went into collapse immediately and was also unable to breathe. Artificial respiration was started and stimulants were given, but with no effect. The patient died almost immediately. Stovain had not yet been injected. It was suggested that hernia of the medulla into the foramen magnum from relief of pressure during coughing might have caused medullary paralysis. This could not be confirmed at necropsy.

This, of course, is a death from spinal puncture; but as spinal puncture is a part of the procedure in spinal analgesia, its mortality should be considered with that of the latter.

The third death occurred in a woman who was undergoing an operation for the removal of a large ovarian cyst. The patient remained in good condition until the cyst was accidentally ruptured during the dissection. The cyst emptied itself almost immediately and, at the same time, the woman went into a state of shock and died in a few minutes, on the operating table. We believe that the only part which the anesthetic could have played in the cause of this death was

to lower the blood pressure slightly and thus render the patient more vulnerable to shock.

A fourth case, a pregnant woman, was given stovain, preparatory to a cesarean section for eclampsia. Having a very high blood pressure, she was considered a favorable subject for spinal analgesia. Shortly after the injection and before the operation had been begun, she went into a violent eclamptic convulsion. It is possible that the convulsion caused rapid diffusion of the stovain to the higher centers with resulting respiratory failure and collapse. Two of the physicians present were of the opinion that the convulsion itself was a fatal one and that the stovain was not the cause of death. The woman became very cyanotic and apparently died from asphyxia.

In a general way we are able to confirm Babcock's conclusions with reference to a comparative consideration of spinal analgesia and ether narcosis. Each has its advantageous and disadvantageous features. While the immediate operative mortality of spinal analgesia is perhaps higher than that of ether, the additional mortality from postoperative complications following ether narcosis would probably about equalize them. There is no condition following spinal analgesia comparable to ether pneumonia in its mortality.

Certain points brought out in this paper indicate that the best results cannot be obtained unless one especially qualified administers the anesthetic. While the unfavorable features have not been excessive in this series, we feel sure that they could have been reduced considerably in the hands of one or several experienced men. Ether is undoubtedly better adapted to routine use.

THE FIELD OF SPINAL ANALGESIA

Spinal analgesia has a fairly wide field in which it is the anesthetic of choice, in many respects, namely, for hernia, except those varieties occurring above the umbilicus; all genito-urinary operations except those involving the kidney and upper ureters, and for operations on the rectum, anus, perineum, vagina, cervix and lower extremities.

Pelvic operations and other intra-abdominal operations below the umbilicus can be done very satisfactorily with spinal anesthesia. The Trendelenburg position, which is used in the majority of these operations, offers some difficulties to safe anesthetization and is responsible for some objectionable features, such as a high percentage of vomiting, respiratory failure and collapse.

Spinal anesthesia does not seem to be sufficiently satisfactory for operations on the upper abdomen and thorax to warrant its general use here. When there are contraindications to general anesthesia, or when spinal anesthesia seems to be specially indicated for reasons based on physiologic action, it may be chosen.

Our experience on higher regions of the body is limited to two cases, both of which almost terminated disastrously.

CONCLUSIONS

It has been our purpose in this paper merely to present in a general way this series of cases without attempting to enter into a discussion of the many important features of spinal anesthesia. Our attitude in regard to the method can be summed up briefly:

It has a restricted field in which it is as safe and as efficient as any general anesthetic, and in addition offers certain advantageous features. It has a wider field in which it can be used satisfactorily and safely when general anesthetics are contraindicated. There are definite contraindications to its use, and disregard of these will certainly lead to unsatisfactory and even disastrous results. Special skill is required for the successful use of spinal anesthesia, particularly in its selective field when it is chosen as the least dangerous anesthetic in desperate cases.

Santo Tomas Hospital.

THE PRESENT STATUS OF ABDOMINAL CESAREAN SECTION

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The published statistics of the results of the abdominal cesarean section would seem to prove that it is an operation of such comparative safety that there can be little or no question that it should be classed as one of the greatest advances of modern obstetrics. Apparently it offers a safe and easy method for the delivery of an uninjured, healthy child, with a minimum of suffering and risk to the mother in cases which would possibly end disastrously if pelvic delivery were attempted. Although during its period of development the indications for which cesarean section was performed were practically limited to disproportion between the fetal head and the maternal pelvis, the excellent results which followed its employment in properly selected cases have led to a marked broadening of the indications. The time has now been reached when some operators seem to resort to it for slighter indications than those for which they would perform a low forceps operation, exercising little or no care in the selection of proper cases, with the result that although the published statistics still show it to be a safe surgical procedure under proper conditions, the unpublished results are appallingly bad.

A chance remark made to me by the wife of a competent surgeon practicing in one of the smaller cities near Boston first called my attention to this fact. I had operated on her for the repair of the results of a brutal forceps delivery through a contracted pelvis, and had advised abdominal delivery in future labors. Her reply was to the effect that in their community cesarean section had proved universally fatal to the mother, a statement which led me to investigate the unpublished statistics of cesarean section whenever the opportunity offered, with the result that I am convinced that except in the practice of trained obstetric surgeons, cesarean section can in no sense be considered as a life saving operation, except for the child. I believe that if we could only collect the statistics from the suburban hospitals, or even from the private hospitals of our larger cities, we should be compelled to admit that there is a surprisingly high maternal mortality attendant on this operation, the true indication for which is the saving of fetal life at the expense of little or no increased risk to the mother.

In four cities of from 25,000 to 40,000 inhabitants within 40 miles of Boston, I collected the following data:

In A, no patient on whom cesarean section has been performed is known to have recovered.

In B, the mortality, as personally stated by one of the local surgeons, is from 60 to 75 per cent.

In C, cesarean section is supposed to be a universally fatal operation when performed by the local surgeons.

In D, cesarean section is an operation of from 10 to 20 per cent. mortality in average cases; but since it has been adopted as the routine method of delivery in eclampsia the mortality has greatly increased, it being over 50 per cent. in these cases.

In well equipped private hospitals in Boston, seven patients are known to have been lost recently after operation by supposedly well trained surgeons.

I cannot vouch for the accuracy of these figures, but they demonstrate clearly what is going on in the smaller cities near Boston, and there seems to be no reason to believe that the results are much better in other parts of the country.

R. W. Holmes[1] says that "one who has a mortality of 5 per cent. or more in his cesarean sections should revise his indications — should use discrimination in his selection of cases." This statement, while undoubtedly true, does not go far enough. I believe that every surgeon who loses a case of cesarean section should consider most carefully the causes which have entered into his patient's death, especially with relation to his choice of cesarean section as the operation of election, and also with regard to his operative technic, in order to discover, if possible, the source of trouble so as to prevent similar results in future work. The majority of operators apparently choose cesarean section as a panacea for all obstetric difficulties when some other method of delivery should have been selected, and then blame the patient or some one else for the bad result, forgetting that the responsibility is theirs and that there are certain well known factors which render the operation safe or extremely dangerous, according as they are strictly adhered to or neglected. The primary cause of most bad results is either a failure to recognize the contraindications to the operation or an improper surgical technic, and the responsibility rests with the surgeon.

Inquiry as to the general conditions which have led to these bad results leads me to believe that the principal underlying cause is a lack of knowledge on the part of the average practitioner as to what constitute the contraindications to an abdominal delivery, which suggests that there is a fundamental error in the teaching of obstetrics. The medical student is taught the indications for the operation; he sees the operation performed under proper conditions with brilliant results, and he is impressed with the ease of the operation, as compared with a difficult pelvic delivery, and the satisfactory after-results for both patients. He is not sufficiently taught in regard to the bad results which follow the operation, if performed in improperly selected cases, and his subsequent reading does not educate him on this point, since few except the successful operations get into the literature, and the possible dangers of the operation are either ignored or slighted.

The standard which is set for obstetric care in general practice is so low that, outside of the practice of specialists or general practitioners who have taken special obstetric training, the study of the patient during pregnancy, particularly with regard to the method of delivery best suited to her individual needs, is practically neglected, and the average patient comes to labor without having received any prenatal study. The result is that the great majority of women are allowed to enter on labor without ever having been carefully examined, and, therefore, cesarean section is seldom undertaken until the failure of labor and often of operation has demonstrated that the delivery of a living child through the pelvis is impossible, except by pubiotomy, which is an unknown operation in general practice. Cesarean section is then performed as an operation of last resort for the sake of the child, and the patient, often already infected, dies, or recovers after a prolonged illness.

Experience has shown that certain principles should govern the choice of operation and that every departure from them renders a patient a doubtful or a bad risk for cesarean section. There is not the slightest doubt that if the poor risks are delivered by some other method, even though the sacrifice of the child may be necessary, many maternal lives will be saved which are now sacrificed unnecessarily, at the expense of a relatively small increase in the infant mortality.

Cesarean section performed by a competent surgeon on a healthy, uninfected patient under proper conditions is an operation which should be attended by little, if any, higher mortality than is to be expected in ordinary clean abdominal surgery on patients who are considered good surgical risks. If, however, any one of these conditions is disregarded, the prognosis will be at once materially altered for the worse, and it behooves the operating surgeon to consider carefully in each individual case whether the patient is a proper risk for an abdominal delivery or whether some contraindication to the operation is present. If the latter proves to be the case, he must determine whether delivery may not be effected in some other way with less risk to the mother, and if such proves to be the case it is his duty to refuse operation, even though this may involve a deliberate sacrifice of the child. The only exception to this rule should be that if the cesarean section is demanded by both husband and wife for the sake of the child, after the risks of the operation have been fully explained to them, the surgeon may in exceptional cases, when no more than a reasonable doubt exists as to the outcome, take a somewhat increased risk for the mother for the sake of a child which is in good condition. The factors which should be taken into consideration in making a decision are:

The condition of the patient, both as regards the possibility of uterine infection and as regards complicating diseases, which increase the danger of the operation.

The circumstances under which the patient is placed, both as regards the possibility of an aseptic operation and proper after-care.

The skill of the medical attendants to deal with the special problems which the case presents.

The problem will often prove to be a complicated one and its solution extremely difficult, but it must always be remembered that operation in improperly selected cases means the probable death of the mother from peritoneal infection, the patient having little chance for her life, and that, therefore, vaginal delivery is always to be advised when possible in doubtful cases rather than to subject the patient to the grave risk which abdominal delivery entails in the presence of uterine infection.

The most essential factor for success in cesarean section is that cases for operation should be selected with the greatest care and that operation should be

1. Holmes, R. W.: Obstetrics, a Lost Art: A Criticism of the Promiscuous Indications for Cesarean Section, Surg., Gynec. and Obst., 1915, 21, 636.

refused to all patients in whom uterine infection can be demonstrated or is even seriously suspected, provided delivery can be accomplished by some other means. If, however, abdominal delivery seems to be the only possible solution of the problem, the uterus should be delivered and the peritoneal cavity carefully protected before the uterus is opened, and after the delivery of the child and placenta a complete hysterectomy should be performed, it being a violation of all surgical principles to return an infected uterus to the abdomen to act as a source of peritoneal infection. The greatest care should be taken during the operation to protect the peritoneal cavity from contamination by the infected uterine contents. If infection is only probable but not positive, it may be justifiable, for the sake of the child, to perform an extraperitoneal operation and to leave the uterus; but such a course will be attended by some mortality, and the part of wisdom in doubtful cases is to refuse abdominal delivery when any other method is possible.

To judge from the general results, the conditions which predispose to infection of the uterus, and, therefore, to infection of the peritoneal cavity, if a cesarean section is performed after a test of labor, do not seem to be generally appreciated, and herein lies the explanation of the unnecessary sacrifice of maternal life. Vaginal examination is by far the most common cause of uterine infection; and repeated examination, no matter how careful the aseptic technic may be, should place the patient at least in the suspected class, even if there is no clinical evidence of infection, and render cesarean section an operation to be performed only for absolute indications, and even then with serious misgivings.

Attempts at delivery by the vagina still more increase the risk of a subsequent abdominal delivery, and the obstetrician must realize that a patient on whom a vaginal operation has been attempted unsuccessfully is an extremely bad risk for a cesarean section. If, therefore, he attempts a high forceps operation and fails, cesarean section is contraindicated, and the patient should be delivered by craniotomy or pubiotomy and not by section, no matter how careful he believes his asepsis to have been. Undoubtedly a majority of these patients will recover, if delivered abdominally after a tentative application of forceps, but it is the minority which dies that is important, and I believe that abdominal delivery should be refused to all the patients in this class for the sake of this minority. This is particularly true if the attempt at extraction has been anything more than tentative, unless the value of the child to its parents is such that the mother is willing to take a very serious risk for its sake; and even then I do not believe that the surgeon should allow operation to be forced on him against his better judgment.

Even though there has been no vaginal interference whatever, there is no doubt that the prognosis of cesarean section is materially altered for the worse by the mere fact that the patient has been in active labor for a number of hours, the danger being greater the longer and more severe the labor. A few hours of moderate labor do little, if any, harm; but the exhausted patient is a poor surgical risk, and the results on patients who have been subjected to a true test of labor are distinctly worse, from the standpoints both of morbidity and mortality, than if the operation is performed before labor begins or early in labor. For this reason I believe it is unwise to subject a patient to a true test of labor with the intention of performing cesarean section in case of failure, even though no vaginal examinations are made. A few hours of moderate labor will do little harm; but a true test of labor, that is, allowing the patient to go into the second stage to test the molding of the head, is, I believe, unwise, if a cesarean section is contemplated in case of failure. My own custom is to examine all doubtful cases under anesthesia a few days before the probable date of labor, and if I find it impossible to engage the head in the pelvis, and especially if the head overrides the symphysis, to perform cesarean section at the time of election. I recognize that a certain proportion of these patients will mold the head into or through the pelvis if allowed to go into labor, but I prefer to do a few unnecessary operations at the time of election rather than to be forced to perform an occasional late operation on an exhausted patient with the alternative of a pubiotomy or a destructive operation on a living child.

Patients in whom the membranes have been ruptured for a considerable time are especially prone to infection, even if not examined at all. I believe that when early rupture of the membranes occurs in patients in whom some other possible indication for cesarean section exists, the operation should be performed without unnecessary delay; and if it is thought advisable to give a test of labor, that all thought of cesarean section should be definitely abandoned, and the patient's friends informed of this decision so that they may have the opportunity to elect a cesarean, which is probably unnecessary, if they so desire, rather than to take serious risks for the child. I do not, however, consider early rupture of the membranes in itself an indication for cesarean section, no matter what the presentation or position of the child.

Patients suffering from acute infections of any sort, whether local or general, should be classed as poor risks for abdominal delivery, and operation should be refused if any other method of delivery is possible. Chronic diseases complicating pregnancy, such as chronic nephritis, diabetes and heart lesions, render the prognosis of cesarean section more serious than if the operation is performed on a healthy patient. Although in many cases the operation may be advisable, either in spite of the complicating condition or, as sometimes happens, because of it, as offering less risk than a difficult pelvic delivery, the results cannot be expected to compare favorably with those which are performed on patients in good health, and this fact must be taken into consideration in the choice of treatment.

Preeclamptic toxemia and eclampsia are at the present time cited as indications for abdominal delivery. The best results published to date, however, show a distinctly higher mortality than when delivery is effected by other means, and I believe that although in individual cases the operation may be advisable, it is so in spite of and not because of the complicating toxemia. Unquestionably cesarean section offers the easiest means of delivery for the surgeon and often the least shock to the patient, but I do not believe that a thoroughly toxic patient who is suffering from a partial suppression of urine can ever be considered a good risk for abdominal surgery. In a certain number of cases in which some other reason for the operation exists, cesarean section may be advised, but certainly not as a routine procedure in the treatment of these conditions.

It seems hardly necessary to refer to the importance of proper surroundings for an aseptic operation and the possibility of providing proper after-care for these patients. A tenement house is not a proper place for abdominal surgery when better quarters can be provided, and a well equipped hospital will give the best results. Unless proper surroundings can be provided and proper after-care insured, the performance of cesarean section should, under these conditions, be restricted to patients who present absolute indications for abdominal delivery.

Furthermore, cesarean section will prove an exceedingly fatal operation if performed as an obstetric operation by the poorly trained operator. It is an easy operation, it is true; but as in every other major surgical procedure, the better the operator the better the results, and vice versa. In the hands of a properly trained surgeon who has had no obstetric training, abdominal delivery will often prove safer in emergency than a pelvic operation with which he is unfamiliar; but that does not warrant his performing operations unnecessarily when competent advice can be obtained, a condition which frequently arises at the present time.

If these contraindications are scrupulously regarded, I believe fully that abdominal delivery is as safe as a major surgical operation can be, subject only to the ordinary surgical risks, as embolus, ether pneumonia, etc., and should be attended by a mortality of less than 1 per cent. The principal factors which render it safe, however, are the determination of its necessity by careful study of the patient during pregnancy, and the proper preparation of the patient for operation, so that the operation may be performed at a set date, preferably before labor begins, or very early in labor, under proper conditions. Emergency surgery is always relatively unsatisfactory in its results, and cesarean section offers no exception to this rule.

The indications which warrant the performance of cesarean section may be divided into two general groups: those in which for one reason or another an attempt at delivery through the pelvis is practically sure to be attended with disaster for mother or child, or both, and that in which, although delivery by the vagina may be possible, abdominal delivery offers definite advantages to one or both patients. The practical distinction between the two classes of indications depends on the results obtained by the abdominal route. If we accept the published statistics as correct, the indications may be very broad in competent hands; but if the unofficial figures which I have quoted at all represent the facts in general practice, the more the operation is limited to patients in whom it is the only possible method of delivery, the better.

In my opinion, cesarean section is a safe surgical procedure as long as proper care is exercised in the selection of cases for operation, and I believe that most bad results are due either to lack of appreciation of the contraindications to operation or to faulty technic on the part of the operator. I feel, therefore, that in the hands of a competent surgeon the operation may be properly performed for comparatively broad indications. It must be remembered, however, that the consensus of opinion among qualified obstetricians is that if a patient is once delivered by cesarean section it is unwise to subject the uterus to the strain of future labors, and future pregnancies are to be terminated in the same way. Therefore, in young women who may have several children, cesarean section is a questionable procedure when performed for indications which are only temporary in character, such as eclampsia and placenta praevia, when any other method of delivery holds out a reasonable hope of success.

The principal indication for cesarean section is, and always will be, serious disproportion between the fetal head and the pelvis. The determination of the degree of disproportion and the estimation of the liability of the individual to serious dystocia will call for the wisest judgment after thorough examination under anesthesia. If the disproportion is marked, a primary cesarean at the time of election should be advised without hesitation, in spite of the fact that in some cases the test of labor will result in a not unduly difficult pelvic delivery; but the risk to the life of the child and of serious laceration of the mother is too great in these cases to be a proper one. If the disproportion is only moderate and the patient is a young primipara, I believe that she should be subjected to the test of labor in the majority of cases; but if the patient's nervous or physical equipment is such that it is not thought wise to subject her to the strain of the prolonged second stage, which would probably be necessary to mold the head into the pelvis, cesarean section is the operation of choice.

Women whose previous labors have proved unduly difficult and who have lost one or more children from complications incidental to difficult operative deliveries, even though no definite pelvic contraction can be made out, should be classed as proper subjects for cesarean section, and in this class also should be included women who have suffered serious pelvic damage in their previous labors, which has later been repaired, unless some other factor renders them poor abdominal risks. This especially holds true when the patient has suffered a third degree perineal laceration or a vesicovaginal fistula.

A previous cesarean section should always, in my opinion, be followed by cesarean section in subsequent labors. Published cases show that the risk of rupture of the uterine scar, if exposed to the strain of labor, is a definite one, and that the mortality from this cause is higher than the mortality from the repeated cesarean section. Therefore, the repetition of the cesarean section is called for, since it is not possible to predict in a given case whether the scar will rupture or not, irrespective of the method of suture employed or the operative skill of the surgeon in the case. The performance of a primary cesarean section in patients who have no permanent indication, as, for instance, in eclampsia, placenta praevia and the like, should be undertaken only when it seems to be a life saving operation for the child or a health saving operation for the mother, and the family should be informed in regard to the future of the patient when the operation is advised. The fact that in the great majority of cases the scar will not rupture is not, in my opinion, any argument for deliberately choosing the greater of two risks for the patient for the sake of avoiding the lesser.

Dystocia, resulting from previous operations, may render a cesarean section necessary in subsequent labors. Ventral fixation, or an improperly chosen method of suspension, which has resulted in fixation, and amputation of the cervix are especially liable to cause trouble in subsequent labors, and patients who have been subjected to such operations should be carefully studied in order to determine what method of delivery is indicated with due regard to the safety of both patients.

In primiparas who have marked valvular lesions of the heart, especially mitral stenosis, cesarean section will, in many cases, prove the safest method of delivery, particularly in women who have had signs of failing compensation during pregnancy. Probably in the majority of these cases, delivery by the vagina can be accomplished without undue risk to life, if the second stage of labor is terminated promptly by forceps; but I believe that the strain of even an average first stage detracts seriously from the reserve power of the diseased heart, and that a cesarean section before labor begins offers the safest method of delivery for these patients, especially when the future health of the patient is taken into consideration.

Women of over 40 in their first pregnancy may very properly be looked on as proper cases for abdominal delivery. The fact that the patient may never have another child, combined with the somewhat increased danger of unsatisfactory labor, which may result in severe pelvic laceration following an operative delivery through rigid soft parts, offers, in my opinion, a proper indication for cesarean section in selected cases. If in addition to rigid soft parts and the relative importance of the child there exists even a slight pelvic contraction, the indication, in my opinion, becomes absolute.

Premature separation of the normally situated placenta with symptoms of severe hemorrhage not infrequently offers a proper indication for abdominal delivery, since in some cases it may be necessary to remove the uterus in order to prevent death from postpartum hemorrhage, as has been recently reported in two instances by J. W. Williams.[2] If the patient can be operated on, under proper conditions, in a well equipped hospital, the indication is a sound one; but if operation is done as an emergency under poor conditions, the mortality will probably be little improved by adopting abdominal delivery as a routine in general practice.

The general indications for the operation are, some obstruction to delivery or the presence of some condition which renders the abdominal route the safer one for mother or child, or both. In the literature of the present day many other indications are advocated: eclampsia, placenta praevia, contraction ring, breech or face presentations in primiparas, general poor equipment for labor, etc. Any one of these indications may furnish a proper indication in the given case when taken into consideration with other complicating factors, but none of them is a sufficient indication for a routine abdominal delivery to be advocated. If operation is undertaken for one of these reasons, the patient or her friends should be carefully informed of the circumstances which render the operation wise, of the dangers of the operation in case of a faulty technic, which is always possible, and of the necessity of future cesarean sections in case the patient becomes pregnant again. In other words, the operation at the best is one to be chosen for good and sufficient reasons, and not one to be undertaken lightly.

2. Williams, J. Whitridge: Surg., Gynec. and Obst., November, 1915.

Alcohol Chief Cause of Crime.—Liquor was responsible during 1916 for the greatest crime wave in the history of Harrisburg, Pa., according to the report of Superintendent of Detectives William L. Windsor. The arrests totalled 3,857, nearly 1,000 more than in 1915. Nearly every one of the men and women arrested was either drunk or to some degree under the influence of alcohol.

HUMAN ANTHRAX

REPORT OF AN OUTBREAK AMONG TANNERY WORKERS *

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Twenty-five cases of human anthrax, reported to the state department of health in four months, constitute the severest outbreak of this disease ever recorded in Massachusetts. A clinical and epidemiologic study of these cases has revealed some interesting facts as to the sources and modes of infection, methods of prevention and treatment of this disease.

Epidemiology.—While twenty-three of the twenty-five reported cases were in persons handling hides, the most interesting group consists of twenty cases which were infected from a common source. An analysis of the early reports showed that the infection seemed to be confined to the workers in three tanneries located in adjoining towns. Further study revealed the fact that every one of the persons infected had been handling dried "China" hides.

To find a common source of hide supply for three rival tanneries seemed hopeless. The key to the situation was discovered in the characteristic trade mark stamped on the hides. While all three of the tanneries received hides through Boston and New York brokers, the brokers in turn purchased them through a common agent in New York City. By means of this characteristic trade mark, the particular lot of hides involved was traced through the Boston and New York brokers to a single cargo of hides which entered the United States at the port of New York from Hankau, China. In the portion of China in which these hides originated, anthrax is known to be endemic. From this cargo of hides each one of the tanneries involved received a shipment. Further, the shipping receipts for the hides showed that they arrived before the first case of anthrax occurred.

The next step was to demonstrate the exposure of the infected men to these hides. A comparison of the time when the hides were in the process of being tanned with the working time of the infected men furnished the test. Every one of the men handled the hides bearing the characteristic trade mark. This completed the picture. Hides coming from the infected territory, shipped to the tanneries involved, handled by men who came down with anthrax, with no cases in other tanneries, is sufficient evidence on which to convict this shipment of hides of being the cause of this particular outbreak.

Clinical Histories.—The interesting clinical features of this group of cases may be conveniently condensed into the accompanying table.

Prevention.—The study of anthrax infection, in general, shows that the great majority of the cases in this country are due to infected material imported from abroad, and further, that the infection among tannery workers occurs practically only in the early stages of the tanning process. Therefore, this infec-

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the authors' reprints. A copy of the latter will be sent by the authors on request.

tion can be controlled, first, by the exclusion of infected material from this country; secondly, by the disinfection of the material after it arrives in this country, and, thirdly, by the safeguarding of the workers who handle the material.

A careful study of the methods of hide gathering, together with the economic necessity of importing hides, indicates that it would be both futile and unjustified to stop the importation of dried hides.

Second, the United States Treasury regulations under which hides are imported, demanding a certificate as coming from uninfected territory or showing disinfection by immersion in a 1:1,000 solution of mercuric chlorid for thirty minutes, has failed to prevent the importation of anthrax infected hides. The federal authorities at present do not possess a knowledge of the distribution of anthrax infection in foreign countries. The experiments of the United States Department of Agriculture for the disinfection of hides has not resulted in an efficient and practicable disinfectant.

The safeguarding of the workers who handle hides in the early processes of tanning is being very indifferently carried out. Tanneries have for many years been accepted as places where cleanliness was impossible. Little or no attention has been paid to the cleansing and disinfection of the vats and utensils used by the workmen. Consequently, many of these places are highly infected with anthrax spores.

In view of these facts, it will not be possible to control anthrax until at least the latter two methods are more thoroughly carried out.

Treatment.—While it is not within our province to study intimately the treatment of anthrax, our impressions are perhaps worth recording.

In the group of cases under consideration the wide diversity of treatment is striking. In this limited group of cases excision has seemed to be less satisfactory than the expectant treatment, together with forced feeding in an attempt to overcome the infection by fortifying the resistance of the patient.

The serum treatment for anthrax is perhaps the most promising. During the course of this outbreak, through the kindness of the United States Bureau of Animal Industry, we were enabled to make arrangements for securing the serum treatment for this disease. While the limited number of cases to which it has been applied is not sufficient to draw conclusions from, it is surely worth a careful trial.

CONCLUSIONS

1. Anthrax infection is an important occupational disease.

2. The federal authorities should gather information as to the distribution of anthrax infection among cattle in all hide-producing countries.

3. Renewed efforts should be made to discover an efficient method of disinfection which does not injure the hide and is not prohibitive in price.

4. Tannery workers should be safeguarded against this infection.

5. The serum treatment should be thoroughly tried.

OUTLINE OF CLINICAL HISTORIES

No. and Date (1916)	Occupation	Location of Lesions	Treatment	Result
1. Mar. 2	Tannery worker (beam house)	Left side of neck	Excision	Death
2. Mar. 9	Tannery worker (beam house)	Forehead	Antiseptic compresses	Recovery
3. Mar. 13	Tannery worker (beam house)	Forehead	Cauterized; moist mercuric chlorid dressing	Recovery
4. Mar. 14	Dock laborer	Left side of neck	Mercuric chlorid dressing	Death
5. Mar. 14	Tannery worker (beam house)	Right side of neck and right thigh	Excision under ether	Recovery
6. Mar. 16	Tannery worker (beam house)	Left side of neck	Antiseptic compresses; mercuric chlorid dressing	Recovery
7. Mar. 18	Tannery worker (beam house)	Right forearm	Compress —70 per cent. alcohol	Recovery
8. Mar. 21	Tannery worker (beam house)	Left cheek	Boric dressing	Recovery
9. Mar. 21	Tannery worker (hide splitter)	Left side of neck	Mercuric chlorid dressing	Recovery
10. Mar. 21	Tannery worker (die stamper)	Left side of neck	Mercuric chlorid dressing	Recovery
11. Mar. 27	Hide weigher	Left side of neck	Excision; mercuric chlorid dressing	Recovery
12. Apr. 10	Teamster	Left side of neck	Antiseptic mercuric chlorid dressing	Recovery
13. Apr. 11	Tannery worker (beam house)	Right side of neck	Mercuric chlorid dressing	Recovery
14. May 1	Tannery worker (beam house)	Left side of cheek	Mercuric chlorid dressing	Recovery
15. May 1	Tanner	Left cheek	Mercuric chlorid dressing	Recovery
16. May 2	Tannery worker (beam house)	Left ear	Mercuric chlorid dressing	Recovery
17. June 3	Tannery worker (flesher)	Right side of neck	Mercuric chlorid dressing	Death
18. June 4	Tannery worker (beam house)	Left side of neck	Mercuric chlorid dressing; Serum, 45 c.c. and 20 c.c.	Recovery
19. June 16	Tannery worker (beam house)	Right arm	Refused treatment	Recovery as far as known
20. June 27	Tannery worker (beam house)	Right groin	Dry, sterile dressing	Recovery

Milk and Typhoid Dissemination.—Milk may become infected with typhoid bacilli through essentially the same channels as other foods and beverages, and is probably not more exposed to such infection than are various other foods; certainly it is less exposed than many vegetables in common use, and much less exposed than surface waters. Milk differs from other vehicles of typhoid infection, however, in that it affords an excellent medium for the multiplication of typhoid bacilli; whereas in most other common vehicles of transmission, typhoid bacilli tend under usual conditions to decrease very rapidly.—W. H. Frost, M.D., *Public Health Report*, Dec. 1, 1916.

INTRASPINAL TREATMENT OF NEUROSYPHILIS WITH STANDARDIZED SALVARSANIZED SERUM *

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The value of intraspinal therapy as an adjunct to the treatment of neurosyphilis has been established. Sufficient work has been done during the past four years to determine thoroughly its efficiency as a means of relieving symptoms and staying processes. It has stimulated renewed interest in the problem of neurosyphilis, and has added to our diagnostic appreciation of the condition by encouraging lumbar puncture as a routine measure in all suspected cases.

It is my purpose to discuss my experiences in the management of seventy-two cases of neurosyphilis during the past two years. These cases came under my observation in a practice limited to the problems of internal medicine.

The technic used is that devised by Ogilvie, which is a modification of the Swift-Ellis method. Fresh blood serum is taken from the patient on the day of the injection, from 0.25 to 0.75 mg. of salvarsan, arsenobenzol or diarsenol is added, and it is placed in a water-bath at 37 C. (98.6 F.) for forty-five minutes and then 56 C. (132.8 F.) for thirty minutes. The usual quantity of blood serum so treated is 10 c.c.; it is injected into the spinal canal by replacing an equal quantity of cerebrospinal fluid. All patients are required to go to the hospital for from twelve to twenty-four hours and remain quietly in bed. The lumbar puncture is done in the usual manner by inserting the needle in the median line between the spinous processes of the third and fourth lumbar vertebrae. The discomfort is generally no greater than that experienced in taking blood from a vein; hence no local anesthetic is needed. Rest in bed is essential, but restriction of diet is not necessary. At least 50 per cent. of the patients do not experience any discomfort, and are able to resume their work the following day. Head pains, such as follow lumbar puncture, in which fluid is not replaced, do not occur. A certain percentage of patients develop pain, characteristic of the disease, from two to four hours after treatment, which passes off in ten or twelve hours. Approximately 25 per cent. of the patients are given codein to get rest. With experience one feels no greater risk in giving intraspinal treatment than intravenous. In none of the seventy-two cases was there evidence of untoward signs following treatments.

The number of treatments given was 252. Of the seventy-two patients, twelve were given only one injection and hence are not considered in determining results. The average number of treatments given a single patient was four. The maximum number was twelve. The results of treatment are given in the accompanying table.

The seventy-two cases consisted of the following clinical classification: cerebrospinal syphilis, 6; cerebral, 15; spinal, 6; tabes, 26; paresis, 6; congenital syphilis, 1; syphilitic endarteritis, 2; spinal myelitis, 2; 1 case of psychosis of questionable classification with positive Wassermann on blood serum and negative lumbar puncture findings; cases in which the clinical picture was only suggestive and treatment was provocative, and hence unclassified, 8.

* Read before the Mississippi Valley Medical Association at Indianapolis, Oct. 11, 1916.

Of the patients made clinically well, two had been treated intensively previously and were not relieved completely, but were given complete relief by intraspinal treatment, and remain so after a period of one year from last treatment. Seven of the clinically well patients were treated simultaneously, intravenous being alternated with intraspinal treatment. Two patients had been given intensive treatment intravenously previous to intraspinal treatment without relief, and were then given alternating intravenous with intraspinal treatment and completely relieved.

As the analysis shows, only a small percentage of the patients treated had had intensive treatment previously without relief and were completely relieved by intraspinal treatment. It is obvious that we can know positively the value of intraspinal treatment only when it is used independently of other treatment, but subsequently to it. In most cases, intraspinal treatment alone is not indicated for the reason that one is limiting therapy to only a part of the body when the organism as a whole is suffering from the infection.

Experience leads one to believe that intraspinal treatment cannot replace general treatment, but must be used as an adjunct and in conjunction with general management in most cases of neurosyphilis. It must be regarded only as an extra weapon of defense against the activity of an infection which is difficult to combat and until recently has been regarded as hopeless, so far as the affecting of a clinical cure is concerned.

RESULTS OF TREATMENT

Results	Number	Per Cent.
Lymphocyte count made normal	24	40
Wassermann made negative on cerebrospinal fluid with 0.5 c.c.	7	11⅔
Globulin content of fluid made negative	12	20
Negative lumbar puncture made positive by treatment and hence provocative	8	13⅓
Made normal in all lumbar puncture findings	6	10
Improved, but not made normal in one or more findings	22	36⅔
Unimproved on lumbar puncture findings	8	13⅓
Alternate intravenous or simultaneous treatment with either salvarsan or mercury	27	45
No intravenous treatment with intraspinal treatment, but intensive intravenous and mercurial treatment previously	3	5
Both previous intravenous treatment and alternate in conjunction with intraspinal	23	38⅓
Only intraspinal treatment	7	11⅔
Completely relieved of all annoying symptoms and apparently made well	12	20
Improved in one or more symptoms, but not completely relieved	40	66⅔
Improved and afterward relapsed	2	0⅓
No improvement (two advanced paretics, now dead)	6	10

I do not believe that intraspinal therapy is indicated in early neurosyphilitic involvements unless general treatment has failed. Since it is proved that nervous involvement occurs in apparently 100 per cent. of syphilitic infections, and our past experiences teach us that only a comparatively small percentage later on in life develop active neuro-involvement, we must conclude that either spontaneous cures or general management have been quite effective in controlling the infection. So long as the involvement is meningeal in character, in view of the richness of the vascular supply we have a right to believe that general treatment is sufficient. This, however, should be proved on lumbar puncture.

No patient with early syphilis should be dismissed as tentatively cured on a blood reacting negatively to the Wassermann test. On the other hand, a positive lumbar puncture is indication for intraspinal treatment even though there are no definite clinical signs of such involvement, such as nervous irritability or head pains.

It is striking how much relief a single intraspinal treatment will give in early neurosyphilis when general treatment has failed. High cell counts and a positive Wassermann reaction on the fluid are quickly brought to normal, and head pains are almost instantaneously relieved. The tabetic if intensively treated becomes less ataxic, loses his lancinating pains, experiences a disappearance of crisis, and is improved in his mental and physical state. In fact, the sense of relief is so great in certain cases that these patients solicit further treatment. Deep reflex disturbances in the spinal case are often completely relieved. Vertigo and head pains in the cerebral case are controlled.

The clinical improvement does not necessarily parallel the laboratory improvement. As is shown, only a few cases have been made completely negative on lumbar puncture findings, and it is not always in the negative case that the patient is completely relieved of annoying symptoms. The most striking improvement was in cases of tabes which showed negative lumbar punctures some time after treatment.

It is extremely difficult to make a fluid negative, and it is a question just how much value a lumbar puncture has as an index to intensive therapy after symptoms are relieved. Biologic findings alone cannot be used independently of clinical findings as an index to therapy. It is not uncommon to find a blood which cannot be made negative to the Wassermann test after most intensive treatment, and this is more often true of the cerebrospinal fluid. Patients with neuroretinitis are improved under intraspinal management and remain so. One patient with ophthalmoplegia, who previously had been treated in another clinic with mercury without relief, showed a marked improvement after a single intraspinal injection. A patient with congenital syphilis improved materially after two treatments. Paresis has not given satisfactory results; a few patients have given encouragement only to relapse and rapidly grow worse. It is not reasonable to believe that after changes in the deeper structures of brain tissue have taken place, any specific therapy, however administered, is of value.

We have come to realize more than ever before the importance of intensive treatment of syphilitic infections, that our former point of view needs revision, that syphilis, like tuberculosis, is everywhere, that the infection is often present where there is no history of immorality, no history of an initial lesion or manifestations of any character, and that a positive Wassermann or positive lumbar puncture may be our only means of diagnosis. And, too, we must realize that a negative Wassermann on a blood stream does not necessarily rule out syphilis, which is especially true in neurosyphilitic involvement; but, on the other hand, a neurosyphilitic involvement very seldom gives negative lumbar puncture findings.

Not all cases of neurosyphilis are amenable to treatment, it matters not how intensive it may be; but a surprisingly large percentage of patients are made better symptomatically and biologically if treatment is rationally and intensively employed.

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Terminal Disinfection.—Terminal disinfection creates an impression of "something doing," but with advancing scientific knowledge, it is falling more and more into disuse, save for tuberculosis, and is being replaced by concurrent disinfection (that is, of all discharges while the patient is in an infective state).—Alice Hamilton, *Survey*, Jan. 20, 1917.

POSTOPERATIVE COMPLICATIONS FOLLOWING PROSTATECTOMY*

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While success in prostatectomy cases is dependent mainly on careful preoperative selection and preoperative preparation, many patients who would otherwise recover will die if postoperative care is neglected. Moreover, much can be done after operation to add to the patient's comfort and hasten his convalescence.

In the past few years at the Mayo Clinic, the various operative modifications of suprapubic prostatectomy and subsequent drainage, as well as many variations of postoperative treatment, have been tried out, and either continued or discarded according to their efficacy. After many changes in methods our present and satisfactory technic is briefly as follows:

1. A relatively large incision over a comparatively empty bladder, extraperitoneal, if possible.

2. Rupturing the prostatic capsule by inserting a finger into the urethra, sweeping the gland free from its capsule and delivering it into the bladder, at the same time tearing it from the mucosa of the prostatic urethra. If the capsule bleeds freely, bleeding tags are controlled by continuous catgut sutures or rarely by a long gauze pack brought out through the wound. The wound is closed with the usual catgut and interrupted silkworm sutures with a 32 French, soft, pure rubber double eyed catheter in the upper angle and a small split or half rubber tube in the space of Retzius and out through the lower angle of the wound. The bladder tube is tied with the loose ends of the upper silkworm suture after the skin knot has been tied, so that when the suture is cut to remove the tube, the skin stitch is not disturbed. The tube in the space of Retzius is not sutured, but has a large safety pin in its free end to prevent motion. Ether anesthesia by drop method is used. The operation usually takes from ten to fifteen minutes, its brevity avoiding any ether complications.

When taken from the operating room, the patient is put into a warm bed with hot bottles around him, and rectal saline is started. The bladder is irrigated only sufficiently to keep the tube draining, clots being washed out with a 2-ounce syringe; the size of the syringe avoids overdistention of the bladder. As far as possible, opiates are withheld, though a single dose of morphin and atropin is usually given the first night. Water by mouth is encouraged as soon as the patient awakens from the anesthetic, and light diet is started the morning after the operation, with a generous tray after the fifth day if desired. It is our usual practice to get the patient up on the third day, and earlier if indicated. Cardiac or other complications necessitate a longer stay in bed. One ounce of Epsom salt is given on the third morning. Dressings are changed as necessary. Tubes are undisturbed until the fifth or sixth day, by which time there is a more or less permanent canal formed around the rubber drain which prevents somewhat the spread of urine and infection to the rest of the wound. It is to be remembered, however, that following the drainage of a distended

* From the Mayo Clinic.

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* This paper and the ones by Drs. Gardner and Squier which follow are parts of a symposium on prostatectomy. The first two papers, by Drs. MacGowan, and Young and Frontz, appeared last week.

bladder, the bladder in contracting often causes a tube which was in the proper position at the time of operation to prod into its base later. A continuation of spasms of the bladder after the urine is comparatively free from clots indicates the withdrawal of the tube for an inch. This usually gives immediate relief.

On the fifth day the tube in the space of Retzius is replaced by a narrow wick of gauze with a safety pin attached. The bladder tube is replaced on the sixth day by a smaller male catheter which is held in place by a piece of enameled fishline. The ends of the fishline are fastened to the skin with adhesive on opposite sides of the incision, so that contact with the wound is avoided, and the changing of dressings is facilitated. Enameled silk fishline has the advantage of other suture material in that it does not stretch and is nonabsorbent. The gauze in the space of Retzius is changed daily and shortened with each change till it is finally pushed out. The bladder drain is replaced by successively smaller catheters as the wound closes. Eventually the catheter is clamped off for twenty-four hours and removed. A small, soft catheter may be placed in the urethra about the third week if necessary, either partially or continuously, according to how the patient voids and whether or not he has used a catheter before the operation. With better postoperative technic, the necessity for the use of permanent catheters in the urethra is avoided. The silkworm sutures are removed not earlier than the fourteenth day.

Most wounds in the bladder will close of their own accord if kept free from collections, and reasonably clean. A previous suprapubic sinus in the midline should be excised at the second operation. The preparatory stab drain should be made an inch to one side of the midline. It will usually close by the time the midline drain of the subsequent operation is ready to be removed. Every effort should be made to stop any urinary drainage from the lower angle of the wound where the drain has been placed in the space of Retzius, and to get this part completely healed before removing the tube from the upper angle. It has been our experience that in almost every instance of a slow closing wound the leakage has been from the lower angle. Keeping the skin wound open at the points of drainage and using a sharp curet or caustic about the end of the second week, in addition to keeping the bladder empty by frequent voiding or catheterization, will usually secure an early closure. Cystoscopy should always be performed in cases in which a sinus persists; obstructing tags should be removed, and the possibility of a lost sponge should be kept in mind. Occasionally a plastic closure will be necessary. When it is not advisable to use a catheter in the urethra, a modified colostomy pad and bottle is often useful until the suprapubic wound closes. The use of zinc oxid and other ointments should be avoided on the wound, as they become infected and cannot then be completely removed.

Patients are encouraged to drink water, milk and buttermilk in abundance. If the appetite is poor, a little beer may be given. As soon as the stomach is settled, 15 grains each of hexamethylenamin and acid sodium phosphate in solution is given every three hours. Hot packs, subcutaneous, intravenous or rectal salines are used freely when indicated.

COMPLICATIONS

In considering postoperative complications, I have confined myself to the more common types, and have not taken into account the numerous terminal infections and complications of fatal cases which bear no relation to the usual postoperative treatment. The patients who have been considered in this review have had the most careful preoperative examination and preoperative preparation, so that many of the usual complications have been reduced or eliminated.

Postoperative complications may be divided into two groups, namely, infectious and noninfectious. In the first group may be included wound infection, pyelonephritis, epididymitis, phlebitis, cystitis, etc. In the second group are hemorrhage, cardiac disease, acute renal suppression, embolus, apoplexy, etc. Many of the second group, however, may be due indirectly, at least, to infection.

The prevention of infectious complications must be initiated through preparation before prostatectomy, that is to say, by thorough drainage of the bladder and the establishment of immunity against the usual urinary pathogenic organisms. This can be accomplished by improving the general health and increasing the elimination, thus increasing the resistance to infection. When there is marked cystitis, the bladder should be cleared up before prostatectomy. If stones are present, they should be removed.

Wound Infection.—In speaking of wound infection, I refer not to the mild infection which follows any open wound, but to the foul, sloughing infection which may play a major rôle in the causation of such complications as epididymitis, cystitis, pyelonephritis, phlebitis, etc. Care should be taken that at the time of operation the bladder is as clean and as nearly empty as possible, in order that contamination of the wound may be avoided. Sutures should be tied relatively loosely, and the edges of the skin should be carefully approximated without inversion or eversion. Continuous skin sutures of horsehair, catgut, etc., have usually been followed by more infection than interrupted silkworm sutures. Leaving all drains undisturbed until the fifth day unquestionably walls off the drainage and reduces the infection. With the first evidence of redness, swelling or pain in the wound, usually about the third or fourth day, a continuous hot potassium permanganate dressing is applied. The rapidity with which the odor and other evidences of infection disappear after such treatment is astonishing.

Pyelonephritis.—This, probably the most frequent complication, often exists before operation in its various degrees either as the result of vesical retention or antedating any disturbances of the bladder. Serious destruction in one or both kidneys can often be overlooked in the presence of a very large prostate and a purulent bladder, and discovered only at postmortem. When it has not been advisable to perform cystoscopy on the patient, or where the ureters were not located by the cystoscope, a cysto-ureteropyelogram should be made, the bladder having been filled with an opaque medium and the patient placed in the Trendelenburg position for ten minutes and a roentgenogram taken in that position. This sometimes gives a definite idea as to the amount of destruction in one or both kidneys. If the technic is properly carried out, an absence of the medium in the ureter usually means a normally contracted vesico-ureteral valve and an absence of any marked degree of infection. In the presence of infection, the valve is relaxed and the ureter atonic, allowing the free flow of the bladder medium to the ureter and the pelvis of the kidney. All degrees of dilatation

are exhibited, from that of slight distention to that of an extremely dilated sacculated ureter and pyonephrotic kidney.

Acute pyelonephritis may occur at any time from the day of the operation to several weeks thereafter. The symptoms are usually characteristic — several days of increasing fever and malaise, possibly with pain in the back, followed on consecutive days by severe chills, hyperexia and sweats and then a gradual subsidence of all symptoms. Attacks usually last from three days to a week and tend to recur. Prophylactic treatment consists of (1) avoiding septic collections in the wound and bladder, (2) forcing fluids, and (3) administering 15 grains each of hexamethylenamin and acid sodium phosphate in solution every four hours from the third day after operation. During an attack the patient should be kept quiet, though not necessarily in bed. Liquid diet, saline laxatives, and acetylsalicylic acid (aspirin) if necessary to control the pain, should be given. The symptoms are often alarmingly severe, but in acute attacks the prognosis is often excellent.

Epididymitis.—This occurs relatively often, either primarily or secondarily to a previous infection. It is usually unilateral, though an involvement of the other side may shortly follow the first. The infection is often due to the use of a permanent urethral catheter, and may not appear until several days after the catheter has been removed. As a rule, fever and malaise precede the swelling by a day or two. Slight tenderness can be elicited from the beginning. Keeping the testes well supported is the best prophylaxis. During an attack, support with moderate pressure, an ice bag and rest, if started early, will be all that is necessary. In most cases the pain begins to subside about the fourth day and the swelling several days later, though some thickening usually persists permanently. Most of the cases in which the patient does not begin to improve by the fourth day will go on to suppuration. In such cases drainage should be instituted as soon as any collection can be detected. Topical applications in the acute stage seem to do harm rather than good. Although vasectomy may reduce the occurrence, it does not preclude it. Heat in our experience has caused more pain and increased the suppuration.

Phlebitis.—This is rather infrequent, and the usual treatment of rest, elevation, bandaging and heat are all that is necessary. When this condition occurs after prostatectomy, it is significant of lowered resistance to infection and is generally followed by other infectious complications. Usually it is not necessary to keep these patients in bed after the first few days. Embolus has never been observed in our cases.

Cystitis.—Cystitis that is serious enough to be termed a complication should be relieved by preoperative treatment, and its recurrence after operation guarded against by thorough drainage and irrigations of boric acid solution or weak permanganate.

Of the complications not directly attributable to infection, immediate or delayed hemorrhage is the most frequent.

Immediate Postoperative Hemorrhage.—This can usually be reduced to a minimum by careful hemostasis in the abdominal wound. When the patient leaves the operating table the surgeon should be sure that there is no gross bleeding from the prostatic capsule. Sewing up the capsule, rubbing the inner surface until it contracts, packing a sponge wrung from boiling water tightly into the capsule for a minute, and lastly applying a gauze pack or Hagner bag will reduce the immediate bleeding to the point of safety. As little irrigation as is consistent with maintaining the tube free from clots seems to lessen the period of bleeding and to reduce the spasm of the bladder. The urine is usually free from gross blood by the second or third day.

Secondary or Delayed Hemorrhage.—This usually comes on from the fourth to the seventh day, and is due to the sloughing of prostatic tags. It occurs most often in patients who are otherwise feeling very well. There may be no pain or other premonitory symptom, and the first indication of trouble is a spasm of the bladder and expulsion both by urethra and by tube of clots and bright blood, the amount often apparently increased by an admixture of urine. This is most alarming to the patient. A hypodermic of morphin, an ice bag, pressure to the perineum and removal of all tubes, as well as absolute rest, is all that is usually necessary in the way of treatment. In the past six years we have had but one serious hemorrhage from the bladder following prostatectomy. In this case, the treatment just described, as well as hot irrigations with astringent solutions, and the administration of horse serum, etc., served only to retard the bleeding somewhat, and the patient became pulseless and unconscious. Transfusion was then resorted to, and gave immediate and permanent results, followed by an uneventful convalescence. While the usual secondary hemorrhage is the slow gradual bleeding of a small vessel, I believe that a sudden, profuse and dangerous hemorrhage might result from the sloughing through of a large vessel in the prostatic capsule. In such cases the bladder should be opened immediately and the bladder and capsule tightly packed with gauze without delay, and without attempting to find the vessel.

The danger from hemorrhage lies, however, not in death from loss of blood, but in the resulting susceptibility to infection in an anemic person of advanced age.

Cardiac Disease.—Heart complications, though frequently found in prostatic patients previous to operation, rarely have to be considered as postoperative complications except as a terminal condition, for cardiac decompensation or borderline cases can usually be detected before operation by means of a careful physical examination, supplemented, if necessary, by Roentgen and electrocardiographic examinations. If compensation is good before operation there is little to fear after operation from a chronic heart condition which rest and digitalis will not relieve.

Renal Insufficiency.—Uremia, thanks to preoperative treatment, is less frequent now than formerly. Two types must be recognized: (1) the acute congestion with suppression of urine, (2) the interstitial type, in which, though large amounts of urine may be voided, its specific gravity is very low and the elimination of toxic products almost negligible. The treatment of both types depends on early recognition and early effort to increase elimination by means of sweats, saline laxatives, liquid diet, rectal, subcutaneous or intravenous salines, and caffein, spartein or digitalis. Lack of appetite, restlessness, irritability, drowsiness, etc., may indicate renal insufficiency, and when such symptoms appear, the treatment should be pushed in order to get results. Twenty-four hours later, when vomiting, hiccup, coma or delirium have developed, there is little to be accomplished. In these cases a careful, well trained nurse saves many lives by recognizing the trouble and instituting proper treatment

early. It has been our experience that complications and the consequent mortality may be reduced by efficient and intelligent nursing. Formerly patients on whom prostatectomies had been done were always attended by women nurses both for special and general care. As a rule these nurses had had little previous training, they despised this class of cases, they took no interest in the results, and only an embolus or a hemorrhage startled them into an appreciation of the presence of a complication when it was still early enough for effective treatment. The condition of the patients' wounds was evident from the fact that as far as possible cases of this kind were isolated, and justifiably, to one ward or hall. At present with a corps of male nurses who spend practically all of their time on prostatectomy and allied bladder cases, it is rare that a wound has an odor, and the patients occupy any room in the hospital. The male nurses are alive to the necessity of anticipating complications and starting the necessary treatment sufficiently early to do good.

CONCLUSIONS

I would emphasize:

1. The value of nurses who are trained in prostatic work.

2. The direct ratio between the local infection and the number and severity of complications.

3. The necessity of early recognition and early treatment of complications.

POSTOPERATIVE TREATMENT OF PATIENTS FOLLOWING PROSTATECTOMY *

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The postoperative care in surgical cases is concededly one of the important factors of an operation. The policy of "watchful waiting" can have no place here, but rather one of preparedness. This preparation is doubly important in prostatic cases because of the advanced age of the patients and usually their lowered vitality, resulting from back pressure on the kidneys. To make use of an Irish bull, the preoperative preparation of the patient is the most important part of the postoperative care.

Generally prostatic patients present a history of frequent urination for some years, to which little attention has been given because such frequency was considered a natural condition in an old man's life. Only when they began to suffer from broken rest or experienced complete retention was their physician's attention called to these urinary symptoms. They are treated for dyspepsia, colitis, some cardiac condition, high blood pressure, Bright's disease — because of a trace of albumin in the urine—when the underlying cause is the enlarged prostate, with the coincident back pressure on the kidneys.

To relieve this condition and to put the patient in the best condition possible previous to operation should be the aim of the surgeon. Various methods have been used, such as frequent catheterization at regular intervals, the indwelling catheter in the urethra, and suprapubic puncture. The last is really akin to the two-step operation.

The two-step operation, brought into prominence by Lilienthal, has been popularized by Pilcher, through the use of the large mushroom or Pezzer catheter. The primary operation is performed under local anesthesia, the suprapubic opening being made high enough in the bladder, as suggested by Squier, to be just below the border of the peritoneum, and the Pezzer catheter slipped into the bladder through an opening around which a purse string suture has already been placed. A tight joint is thus made, the wound heals quickly, and, if necessary, we may wait for a week, a month, or three months, until the patient is in good condition. In my opinion this method is far superior to frequent catheterization or the indwelling catheter, with its accompanying traumation of the urethra and ensuing urethritis.

If there has been a dirty bladder and infection of the wound occurs, the patient can withstand it much better than if it were an added risk to a prostatectomy. Nature, in self-protection, lines this opening with granulation tissue. As it is only necessary to stretch this opening in the second operation, there is little risk of infection in this tissue during removal of the prostate.

The patient may now receive cabinet baths, bowel washes, and whatever attention is necessary to care for his vascular system or other complications. It is highly important that patients should sleep at night, and by this method they seem to thrive through their ability to make up for previous loss of sleep.

The cystitis, which is usually present, may now be treated by silver nitrate lavage two or three times daily. The rapidity with which severe cystitis will improve under this treatment is surprising, and a patient who has been septic from absorption of toxic material will yield most gratifying response in increased appetite and general well-being.

In patients who have never been catheterized and have a sterile urine, we have found that with the greatest care infection soon follows. A number of cases have been reported in which fatal results followed the first catheterization. It is this class of cases with the chronically distended bladder, and urine of low specific gravity, and where no great discomfort is complained of, that is most dangerous. Cabot claims that if an immunizing dose of colon vaccine be administered no infection follows. If this proves to be true, it will mark a great advance in the care of these cases.

Now that the patient has been given the preoperative care suggested, how are we to know when he is fit for the second operation? The best answer is had by looking at the general picture. Functional tests, which have been low at first, have been increased. The appetite is better, the urine output has improved and become nearly normal, and either a polyuria has been reduced or a scanty urine increased. As the function increases, the patient usually looks better. I myself rely a great deal on the phenolsulphonephthalein test; but reliance should not be placed on these tests alone, because I have operated successfully on a number of patients when the test remained low. It is most assuring, however, if the test improves and appears within normal limits.

During the period of preparation the patient usually is occupied during the morning with cabinet baths, etc., and is up and around during the afternoon, and sleeps well at night. These patients show a marked change after a week's care. They are being trained for a fight, and the more thorough the training, the greater the

* Read before the Section on Genito-Urinary Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

resistance in the final combat. When they are prepared for the second operation, the most important part of the operation is over.

The second operation is performed under general anesthesia, and the time consumed is very short. The opening is usually stretched to admit two fingers, and the prostate shelled out in four or five minutes. The shock from the anesthetic is almost nil. Probably as many patients have died from hemorrhage, which has been called shock, as from any other cause. Hemorrhage can be obviated in various ways. First, and most important, keep to the line of cleavage. Second, after flushing out with hot water, by the use of the Hagner bag, the hemorrhage may be controlled by pressure. Third, the cavity may be packed with a long strip of gauze, the end being brought out through the drainage tube, or an indwelling catheter may be left in the urethra for drainage and packing around the catheter. Fourth, sewing up the edges of the torn bladder wall. The latter procedure, which has been attempted by various operators and has been more time consuming than the operation itself, has been much simplified by the adoption of an ingenious retractor by Dr. Danforth of the Mayo Clinic. The retractor is easily inserted in a small suprapubic opening and a running suture readily taken where the bladder wall has been torn in removing the prostate. This usually controls the greater share of the bleeding.

The drainage tube should be of sufficient size so that it cannot be plugged by a clot. I prefer the Marion because of its stiff wall, and also the small tube attached, which can be used for irrigation. In closing the wound, figure of 8 sutures of silkworm gut should be used, leaving the ends of the sutures long next to the drainage tube. The less irrigation and the least disturbance of the bladder following the operation the better. If left alone a clot will soon form. When continual irrigation was used, we did not realize just how much bleeding there was, and by our irrigation we inhibited just what we wanted to take place.

If Hagner's bag has been used, it is better to wait forty-eight hours before removal. If packing has been used and the end brought out through the Marion tube, we may begin to remove the packing at the end of twenty-four hours, pulling out that part which is loose, and repeating about every four hours until all comes away. On the third day, as a rule, the urine is clear, or but slightly tinged. The large Marion tube may then be removed and a large size Pezzer catheter inserted. The ends of the figure 8 sutures which were left long may now be tightened up, and the wound strapped with adhesive plaster to give it support. In another twenty-four hours the bladder will have closed sufficiently tight around the tube so that the patient is dry, can get out of bed and can move around quite comfortably.

Patients should sit up in bed on the third day and be out in a chair for an hour or so on the fourth. Men of advanced age do not do well if confined to bed, and should be stimulated to help themselves by getting out of bed early.

At this time a cork may be inserted in the Pezzer catheter and the patient told to void naturally, but he must not try to distend his bladder. The Pezzer is left in the bladder until the wound is solid, usually at the end of two weeks. The tube is then removed and the fistula heals in a few days. The healing can be aided at this time by inserting an indwelling catheter, so that the bladder will not be distended.

The comfort of a patient who is kept dry following operation is incomparable with the former method of letting the suprapubic wound fill up voluntarily. Even if the dressing were changed every two hours, the patient lay in a wet bed most of the time, and the odor surrounding the patient was most offensive.

From a financial point of view, the saving of a dollar a day for dressings is important to many patients, to say nothing of the comfort.

The urine should be watched for marked alkalinity. Acid sodium phosphate or lactic acid bacilli will clear up an alkaline urine, and this would tend to improve a cystitis and prevent formation of phosphates about the wound. It will also lessen the tendency of a complicated epididymitis, which is a frequent occurrence.

To protect the skin from an irritating urine and also to stimulate wound healing, some oily preparation should be used. Equal parts of balsam of copaiba and oleum ricini are very satisfactory. As the suprapubic wound closes, the patient frequently has a rise of temperature, often reaching 104, for twenty-four or forty-eight hours. This condition usually cares for itself without any specific treatment.

The Murphy drip should not be used, because following the trauma of removing the prostate the lower bowel is very sensitive, and the patient has more or less desire to strain and will expel any fluid.

Whiteside[1] reports two cases of rectal fistula following passage of the rectal tube and urethral catheter; also two cases of fatal hemorrhage caused by passing the rectal tube a day or two after suprapubic prostatectomy. These reports emphasize the fact that instrumentation of the lower bowel following prostatectomy is contraindicated.

Diverticula are frequently overlooked before operation because of the difficulty of cystoscopy. Following the operation they may be the cause of hemorrhage because of reducing the pressure in the sac. This may not be recognized until the wound heals, and the patient continues to have residual urine or cystitis that does not clear up. If silver iodid or thorium is injected into the bladder, the patient lying on his back and a roentgenogram taken, it will save much explanation afterward. If a diverticulum is recognized before operation, it is not wise to attempt removal of both diverticulum and prostate at the same time. If the diverticulum is small it may not give any trouble afterward, but if large it should be taken care of after the patient has recovered from the prostatic operation.

Hiccups are a most serious complication. If occurring before operation, they should be a warning of low renal function. They usually appear in from twenty-four hours to a week following operation. They do not occur so frequently following the two step operation as after the one step operation. Being of renal origin, all nourishment should be stopped and every effort made to increase diuresis.

Femoral thrombosis, although a rather unusual complication, is caused by keeping the limbs quiet, permitting the deposit of fibrin at this point. Aschoff suggests, as a prophylactic measure, massage of the legs daily, or having the patient flex and extend the legs for a period each day while in bed.

In the postoperative care of prostatic cases, as in all surgery, it is important and profitable that the surgeon give his personal attention to all details unless, of

1. Whiteside, G. S.: Prostatectomy Mistakes and Failures, THE JOURNAL A. M. A., Oct. 2, 1915, p. 1163.

course, competent nurses can be directed or are experienced in such cases. The surgeon will gain by his personal attention to after-care, because he may early discover any alarming conditions and avoid serious consequences, and he will also derive from his experience in one case points which may prove valuable in subsequent cases.

CONCLUSIONS

It has been my endeavor to emphasize:

The importance of preoperative care and diagnosis.

The advantage of the two step operation because it causes less shock to the patient.

The use of the Hagner bag or packing to control hemorrhage.

The use of drainings which keep the patient dry and also permit them to be out of bed while convalescing.

The fact that instrumentation of the lower bowel following operation is contraindicated.

The importance of personal attention to details of postoperative care.

Electric Building.

THE POSTOPERATIVE AND CONVALESCENT PERIOD OF PROSTATECTOMY *

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For some years past, the importance of preoperative preparation of a patient to be subjected to prostatectomy has been well recognized. Few surgeons at present will operate until the functional capacity of the kidneys has been tested, and if found markedly deficient, attempt has been made to stimulate renal excretion to at least an approximation of the normal.

About a year ago, I became interested in the research work of Myers and Fine on the chemistry of the blood in diabetes and nephritis; and having the opportunity to have blood examinations of my patients carried out by these men, I believe that I have been able to avail myself of certain laboratory determinations which have been of material aid in preventing postoperative complications.

Many of the patients requiring prostatectomy are individuals who present a well defined degree of nephritis. A few have diabetes. The diabetes may vary from a simple glycosuria without acetone or diacetic acid to the more marked cases with a variable degree of acidosis.

Diabetes and nephritis are accompanied by characteristic alteration in the concentration of one or more blood constituents.

In diabetes the sugar concentration of the blood is usually about 0.2 per cent. and may reach as high as 0.8 per cent., and the chemical change in the blood is confined principally to the sugar concentration. Normally the sugar concentration varies between 0.09 and 0.12 per cent. It follows, then, that a knowledge of the concentration of blood sugar is very often a great aid in interpreting the fluctuations in the glycosuria which may be attributed to renal complications. Primarily we are concerned with the hyperglycemia and not with the glycosuria.

We have operated on a number of patients who showed simply a glycosuria but without a hyperglycemia, and have had no trouble in the postoperative convalescence. Again we have been able, by means of blood chemistry, to anticipate certain of the serious complications of diabetes. In a patient presenting a diminishing glycosuria with an increasing hyperglycemia, we have suspected that the threshold of renal retention for sugar has been raised. This not infrequently occurs when chronic kidney disease is associated with a diabetes. The determination of a diminishing glycosuria with a high blood sugar has enabled us to treat the case accurately and adequately before operation, and we feel sure has obviated complications that would have arisen had we not availed ourselves of these scientific determinations.

Previous to taking up the study of blood chemistry in its relation to operative risk, we made it a rule to test out the functional capacity of the kidneys, and have been impressed with the prognostic value that such determination gave us. There are, however, a class of cases in which the ordinarily functional test of renal capacity is fallacious, and we have found that the estimation of the urea, uric acid and creatinin retention has been a much safer guide as to operability. Occasionally a patient who has responded in an adequate degree to the phenolsulphonephthalein test, and would seem to indicate a condition that would be operatively safe, has been operated on and ended up in an acute suppression of urine and death. This has been particularly true of the type of uremic nephritis. Neubauer, Folin, Denis, Myers and Fine have shown that in uremic nephritis concentration of uric acid and creatinin are far in excess of those observed in any other condition. In fact, the uric acid exceeds the concentration observed in gout and lead poisoning, and may rise above 15 mg., while the creatinin is commonly from 5 to 15 mg., and may give as high as 34 mg. per hundred c.c. of blood. This degree of creatinin retention is confined to the uremic type of nephritis.

If one considers that the ratio of creatinin which is formed in the body in health and in disease is practically a constant quantity, and since creatinin is most readily eliminated by the kidney, it is found under normal conditions only in small amounts in the normal blood, from 1 to 2 mg. per hundred c.c. It follows, then, that the estimation of creatinin is of immense value in the prognostic value in this type of case.

It would appear that the permeability of the kidney in nephritic states is lowered and becomes evident in the blood: first, by an increase in the uric acid, second, by an increase in the urea, and lastly by creatinin; and therefore a case that has presented a creatinin retention of from 4 to 15 mg. per hundred c.c. has been a case that has almost invariably developed marked uremic symptoms.

The determination of urea, uric acid and creatinin retention indexes has been a matter of great usefulness in the way of indicating adequate preoperative treatment and thereby preventing the development of some of the major urinary complications after prostatectomy.

I would refer those interested in this phase of the subject to the recent papers of Myers and Fine.[1]

Among a number of factors making for success in prostatectomy, I doubt if I put it too strongly when I

* Read before the Section on Genito-Urinary Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Myers and Fine: Chemical Conditions of the Blood in Health and Disease.

say that an experienced woman nurse is a prime essential, to the selection of whom considerable thought should be given, because in addition to surgical nursing ability, much tact is required in handling these old men and in keeping them interested, bright and cheerful. The patient who is tired out and no longer willing to try to live and wishes to lie down and sleep may easily go into his long sleep. On the other hand, there is the type of patient mentally too alert, too alive to his surroundings — watching and worrying about every little attention shown the irrigations, the dressings, each glance at his tongue or feel of his pulse. He, too, is on the border. Where the first case needs mental and physical stimulation, the second requires sedative and the quieting influences. A proper personality in the nurse will go a long way toward aiding the surgeon in the management of these different types.

I believe that the day has passed when the nursing of prostatic patients should be in the hands of male nurses, or as obtains in many hospitals, relegated to venerable women whose nursing training dates back to that dark period of hospital management when every urologic case was looked at askance, and considered the logical outcome of venereal disease and therefore a condition apart from other surgical cases. In my early prostatic experience I had the utmost difficulty in getting women of high type to nurse my prostatic patients. They had been taught to spurn them and rather considered it beneath the dignity of their profession to take care of a "G.-U." case. After considerable urging, I enlisted the interest of a number of high minded, able women nurses in making a specialty of the nursing of prostatics. Many since have joined their ranks, until at present, in our hospital, there is no such thing as discrimination against these patients, and we have produced a set of able urologic nurses.

Taking up in more or less detail some of the postoperative measures, it has been our treatment not to irrigate the bladder for at least twenty-four hours immediately following the operation. The reason for this is that nature's best method of stopping hemorrhage is to allow the blood to clot. Therefore, disturb the clot as little as possible, since all irrigations tending to remove the clot will only renew the hemorrhage. On the same principle all methods of suction or aspiration to keep the bladder empty are to be considered unwise.

It has been the practice to suture the bladder accurately but loosely, so that in a large number of cases fully one half of the urinary outflow will be discharged alongside of the tube and on the dressings during the first twenty-four hours or so; but as soon as repair of the bladder incision commences, leakage becomes scanty. The dressings are changed as often as necessary to keep the patient dry and comfortable.

Water by mouth is administered in small amounts as soon as the postanesthetic nausea has subsided. Hot water in small amounts has, in our hands, been found to be better borne than ice or cold water. Thirty-six hours or so after operation a brisk cathartic is administered, preferably castor oil. If the bowels do not act freely within six hours, a high colon saline irrigation is given. The patient is encouraged as far as possible to sleep and rest. After the first dose of morphin (¼ grain) is given; another may be administered if necessary, but the continued use of morphin is to be condemned. Morphin, as is well known, decreases all secretion except sweat, and in prostatics recovery is most dependent on the ability of the kidneys to keep secreting.

The critical period seems to be somewhere within the twenty-four hour and the seventy-two hour period. It is here that a persistent nausea or beginning singultus may be the first sign of uremia. Prompt measures will often check its progress. It is at a juncture such as this that the data derived from a chemical blood examination is of invaluable aid to demonstrate the degree of retention products.

The early use of the stomach tube with copious lavage and the administration of castor oil through the tube after the lavage and a little later a high hot colon irrigation will often be all that is required to establish normal convalescence. After a good washing out of the gastro-intestinal tract, a restoration of the proctoclysis, and especially if there is any tendency to arrhythmia of the heart, the administering of the fresh infusion of digitalis in the drip will at once steady the circulation and avert disaster. It is in this stage that early and prompt treatment is the supreme indication.

Within twenty-four hours, bladder irrigations with warm boric acid solution, 5 per cent., are instituted, the number of daily irrigations varying as to the condition of the bladder. In cases of old purulent cystitis the bladder is irrigated at least five or six times a day. This can be done without disturbing the patient at all.

It has been our custom to drain the suprapubic space of Retzius with a cigaret drain. This is removed in from forty-eight to seventy-two hours after operation, again depending on the condition of the bladder.

The suprapubic bladder tube is removed usually in from four to six days. This we think should depend on three factors: 1. The condition of the bladder as to surgical cleanliness — in a clean bladder early, in a suppurative condition late. 2. The amount of ooze and clots. The tube should be kept in until all clots have been removed and all ooze has ceased. 3. The tube should be kept in until there is a well lined granulation tissue fistula formed, so that on removal of the tube there will be no urinary infiltration laterally along the facial spaces and planes.

The patient is early returned to a good nourishing diet, fluids are forced, and these can be taken in any form, as Vichy water, milk, etc. Hexamethylenamin, 10 grains, is administered four times a day, with the addition of sodium acid phosphate or sodium benzoate, 5 grains, four times a day if the urine is alkaline or any tendency to phosphaturia is present. The scrotum should be well supported, and for this the old adhesive bridge is by far the best apparatus.

After removal of the tube the bladder is washed with a fine catheter inserted down into the suprapubic wound, several times daily.

One prominent urologic surgeon has commented on the number of epididymitis cases occurring among his prostatectomies — from 30 to 40 per cent. — and, in looking about for a cause, finally attributed this high percentage to the practice of inserting a retention catheter at the time of operation in an attempt to expedite wound healing. It seems best to avoid if possible any instrumentation of the urethra until at least two weeks have elapsed.

To pass a catheter across a bed of fresh granulation tissue with coincident trauma, especially the prostatic bed with the exposed ejaculatory ducts, is

apt to be productive of more harm than good. Especially should the passage of a sound be advised against, at least until all chances of dislodging any clots in the plexus veins about the neck of the bladder has passed. Septic emboli have been the cause of quick death following stretching of the neck of the bladder in cases in which operation has recently been performed, the sounds having been passed because of an erroneous idea that a stricture might be forming.

After a sufficient time has elapsed, from two to three weeks, the passage of a catheter for irrigation purposes is to be recommended.

Patients may safely be set up in bed in six or seven days and allowed out of bed in from ten to twelve days; but, as these are old men, they should be treated as such, and getting an old man up and out of bed a few days after a major operation is poor policy. It is like "whipping a tired horse." Keep him interested and alive mentally, and make his surroundings pleasant, but by no means start him doing stunts that might not be even appropriate for a person thirty or forty years younger.

The suprapubic fistula heals usually in from two to four weeks, on the average, three weeks. In those that remain open longer it may be necessary to irrigate more often through the urethra. In an exceptional case it may be necessary to insert a retention catheter and drain the bladder so that the fistula will heal.

In those cases which have a tendency to deposit phosphates medication should be given to render the urine acid, and the patient should be dieted to lower the phosphate intake. The insertion of Bulgarian or lactic acid bacilli through the fistula in a large number of cases will quickly stop the incrustations. Sometimes if there is a small bit of slough of clot in the bladder, this may form the basis of an incrustation, and its removal by lithotrite may become necessary.

When the patient starts voiding he should be encouraged to empty the bladder frequently. It seems good judgment, in those patients who before operation had large, stretched, overdistended, trabeculated bladders, to allow the suprapubic fistula to remain open longer than routine, so as to restore by rest the lost bladder tone. Medication has no effect in this type of case.

The final word will never be said on just what constitutes an ideal routine for postoperative prostatic treatment.

More difficult problems come up in the management of urologic cases than perhaps in any other branch of surgery.

The resources of the surgeon are often taxed to the utmost; but in no other branch of surgery does a case well managed, and brought to a final successful functional restoration, produce a more gratifying result to both patient and surgeon.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MACGOWAN, YOUNG AND FRONTZ, GARDNER, CRENSHAW AND SQUIER

DR. PAUL M. PILCHER, Brooklyn: I do not agree that a male nurse compares with a female nurse in these cases if the latter is trained properly. Male nurses do not, as a rule, take as much care of their patients as female nurses do. If I have 100 per cent. phenolsulphonephthalein on one side of a membrane and simply water on the other there is going to be an osmosis between the two sides. That is exactly what happens when we have a hypertrophied prostate with a retention of urine and dilatation of the kidney pelvis. A certain amount of phenolsulphonephthalein will pass through that membrane without any function of the kidney at all. The first thing we have to do is to relieve the retention of urine, not to take the prostate out. You can do it by catheterizing or by doing a suprapubic cystostomy. The reason we do a cystostomy is because the kidney is already embarrassed and we do not want to increase that embarrassment. Every time you pass a catheter into the urethra, especially if you injure the urethra, you increase the embarrassment of the kidney. We recommend a suprapubic cystostomy early so that we can dissect up these tissues and choose our point of opening the bladder. Having put our button drainage tube in place we can sew up all of the tissues around that wound, and all we have to deal with then is a sinus from the skin into the bladder. There is no danger of infecting the prevesical space; it is absolutely unnecessary to drain the prevesical space even with a foul cystitis. Primary union will occur in the great majority of cases. With a button drainage tube in the bladder, and the wound sewed up the patient is perfectly dry, and he should remain dry following that operation for nine or ten days.

I have seen recently a number of methods of keeping the bladder empty. Suturing a Pezzer catheter into the wound and draining the bladder keeps it perfectly dry. It is better than any of the old cumbersome methods in which you attach a hose to a faucet and keep draining the bladder. Another point of importance is washing out the bladder after these operations. That, in our opinion, is absolutely unnecessary, and the men who were the greatest exponents of washing the bladder after prostatectomy have given it up. Some one said never to give morphin. I think that is one of the things to give. It conserves the strength, and I have never seen any disadvantage from it, and we should save our patients from as much pain as possible after operation. We do not believe in suturing of the primary suprapubic opening because we do not think it is necessary in this type of operation. After the primary operation it is possible by dilating with the fingers to take out the prostate without any other instrument.

DR. A. J. CROWELL, Charlotte, N. C.: I believe if we will let the bladder drain itself naturally and normally we will not have complications. I favor the perineal operation. I do not bother about draining the bladder following a perineal prostatectomy; it drains itself. The preparatory treatment is the most important work in our prostatic cases. Practically we know that phenolsulphonephthalein is a fine index as to the kidney function, and we rely on it and the blood urea almost entirely as a guide as to when we should and when we should not operate in our cases of hypertrophy of the prostate. If we will prepare our patients for operation, whether we do the suprapubic or the perineal operation, we can usually get excellent results. We have started out with the idea of doing 100 without a fatality. We have reached the thirty-six mark since a fatality and expect to reach 100 with a very low fatality, if any at all. We also expect to do practically all by the perineal route. We send these patients home in ten days to two weeks after operation with the wound closed or practically closed and of the 273 to 300 cases I have operated in there is not a single fistula left today.

DR. WILLIAM F. BRAASCH, Rochester, Minn.: In regard to the type of operation, it really does not make much difference whether the perineal or the suprapubic is used, because both routes have been demonstrated to be entirely feasible. It is largely a matter of ease of technic to the operator and with the functional after-results. As to drainage, Freyer's original method evidently has been retained, namely, a large single tube drainage. Every one seems to recognize the fact that a single large tube without irrigation is the standard method of treatment. As to the treatment of postoperative hemorrhage: The most interesting method suggested by Cabot of sewing up the capsule was discarded to some extent, but more recently it has again been picked up and used in a modified form, as suggested by Judd, making a wide exposure, and picking up the large blood vessels. It only takes a few minutes longer and requires no packing. The method suggested by Dr. Gardner and employed in the perineal route, namely, using a gauze packing, has its disadvantages. Dr. Judd was

able to sew up the bladder without any drainage, without taking any care of the hemorrhage, and in a series of forty or fifty cases had good results, that is, primary union. But, after this large series of cases, we had two or three unfortunate experiences, so that, in common with the experience of others, we were forced to give up this method. As to the prevention of infection: Using the Freyer tube without any precautions for preventing infection of the prevesical space was found to be wrong. Infection resulted, and it did not remain in that area. Unfortunately it went into the urinary tract, causing pyelonephritis and other complications. So that we now recognize the fact that the prevesical space must be guarded carefully by draining, or as Dr. Pilcher suggested, carefully closed. Unfortunately the method Dr. Pilcher has suggested is not always theoretically very good; it does not always work out well; there is frequently more or less drainage around the tube, in spite of the precautions taken in a certain percentage of cases, and the resulting infection is unfortunate. I wish to make a plea for a standardization of the postoperative care following prostatectomy.

DR. CHARLES E. BARNETT, Fort Wayne, Ind.: One of the little things that impressed me was the fact that the carcinomatous prostatic will not keep a catheter in the bladder, consequently if the patient shows trouble from catheter irritation, you suspect carcinoma. I am in favor of the suprapubic prostatectomy, but the question of cancer has been in my mind ever since I changed from the perineal operation; that is to say, the cancer cells are found in the posterior lobes most frequently, and after you have removed the hypertrophic portion of the prostate you have not removed the posterior lobe, so that if you have removed the cancer it must be in the lateral lobes or in the so-called middle lobe. The hazard of the possibility of carcinoma occurring in the nonremoved posterior lobe still confronts you. I consider the use of morphin bad from the standpoint that you have an unnatural loosening up of the renal secretion, which is followed by a negative phase simulating anuria; its toxemia produces a great tendency to gas distention of the bowels, which is quite a menace to postoperative recovery. You will seldom find that morphin is indicated in any case. I think that morphin is always poison to everybody. A large incision is in the majority of cases unnecessary. Make the incision as small as you can in order to get at the prostate and remove it. All that you need is room enough to get your finger in and get the prostate out and insert the drainage tubes. The shock to the patient is the greatest factor to combat. I believe that local anesthesia will be used more and more all the time, and, as Dr. Pilcher said, the two-stage operation, whereby local anesthesia can be used for the suprapubic drainage of the bladder. In this way you get drainage without epididymitis. An epididymitis adds much to the pathology, and you so frequently have an epididymitis by having the catheter pressure force infection up from the sinus pocularis through the ejaculatory ducts and vasi to the epididymi. Consequently, suprapubic drainage is indicated, and it is indicated primarily before the prostatectomy is done in order to get the patient in shape for prostatectomy.

DR. MARTIN KROTOSZYNER, San Francisco: As regards the preoperative functional study of old prostatics, I believe its application generally to be too one sided, as at the majority of clinics invariably only one test, and preferably the phenolsulphonephthalein test, is applied, which undoubtedly is overestimated in its value. Aside from the fact that, not infrequently, its interpretation is frustrated, as for instance in severe hematuria, it is often performed by inexperienced interns in a flimsy manner, thus often reducing its reliability. In doubtful cases, furthermore, one test does not suffice to give the desired evidence, and it ought always to be correlated and critically compared with at least one other test. Blood urea estimation, done simultaneously with the phenolsulphonephthalein test, is apt to substantiate the functional diagnosis. The blood urea test, though, having too wide a range of normal values, is prognostically not as valuable as blood cryoscopy, which, according to my experience, gives a much deeper insight into functional capacity in these cases than any other test. For bladder irrigation, prior to operation, I prefer silver nitrate, beginning with very weak solutions and gradually increasing in concentration. By these means even highly infected bladders can be cleared up very quickly. As regards the length of preparatory treatment, no time limit should be placed, and ever case should be treated individually. I, like Dr. Pilcher, feel that we have no right to take out the prostate of an old man unless we are reasonably convinced that he will be equal to the shock of the procedure, a knowledge that can only be gained on the basis of ample preliminary treatment. With reference to those patients who come to us with absolutely clear urine, requiring catheterization, I am of the opinion that this procedure will often result in infection, in spite of most stringent antiseptic measures. I recall the case of a diabetic of 59, who came to the hospital with retention due to an enlarged prostate. Although in this case catheterization was done under the most rigid antiseptic precautions, using rubber gloves and in a clean dressing room, the patient died within two weeks after entering the hospital from acute ascending infection of the kidneys. I have seen several similar cases, and at present I generally refrain from catheterizing these patients at my office.

DR. WILLIAM E. LOWER, Cleveland: The reduction of the mortality rate in prostatic operations has been due largely to better preoperative and postoperative care. The operation is becoming more and more nearly standardized. We strive for certain results in prostatic as well as in other operations; first, a low mortality; second, the relief of the patient from the conditions for which he is operated; third, the minimum of postoperative complications. As far as the operation is concerned, a low mortality rate is brought about by more careful handling of the patient on the operating table. We must conserve the small amount of resistance these old people have. Whether the operation should be suprapubic or perineal depends very largely on the individual habit of the operator. Personally, I believe better results follow the suprapubic operation. The postoperative complications—urinary incontinence, continuance of residual urine, and persistent fistulas—all very annoying to the patient, are reduced to a minimum by the use of the suprapubic route.

The question of the treatment of carcinoma of the prostate is always an interesting one. After considerable experience, I have adopted the following procedure: In a case where there is great obstruction to urination, I operate suprapubically and remove such a part of the obstruction as I am able to get out. This relieves the patient of urinary symptoms, and I have seen many of these patients live for two or three years with no great amount of vesical disturbance. On the other hand, if there is no great amount of urinary obstruction, operation is not attempted in these old men, especially where the malignancy of the gland is evidenced by a hard, nodular and fixed prostate with pain in back and thighs, for the malignant growth cannot, with safety, be removed completely, consequently the patient is not aided by undergoing a mutilating operation. If the malignancy is recognized early in the younger men, a very radical operation should be done. I do not believe that in any form of prostatic obstruction prostatectomy should be a primary operation.

DR. DAVID W. MACKENZIE, New York: I wish to report the case of a young man who came in complaining of pain in the back, shooting down both legs. Rectal examination revealed a hard, nodular prostate. Cystoscopy showed a normal bladder. Catheterization of the ureters showed normal findings from both kidneys. While the instrument was still in his urethra, rectal examination revealed a posterior lobe thickened, hard and nodular. The man was 28 years old. We explained matters to him and he decided he wanted it removed. We did a radical removal of the prostate, neck of the bladder and seminal vesicles. The operation went all right, the prostate not being particularly adherent. We made a section of the specimen in the operating room. There were numerous hard, somewhat cheesy spots in the posterior lobe. There was nothing that we could see in the lateral lobes macroscopically. The specimen was sent to the laboratory, and proved to be tuberculosis of the posterior lobe of the prostate. Nothing could be found in the epididymis on either side, and nothing in the seminal vesicles. Since then, on numerous examinations of the urine, we have not been able

to find tubercle bacilli. We injected two guinea-pigs from a bladder specimen with a negative result.

DR. EDWIN BEER, New York: Prostatic carcinoma, as I see it, presents itself under a recognizable and an unrecognizable guise. The second group of cases are proved to be carcinoma by the microscopist after an enucleation of what was supposed to be a simple adenoma. When it comes to the type in which you make a preoperative diagnosis and there is no obstruction, leave those cases alone. Drs. Young and Albarran and Proust have come out for a perineal operation. Others have emphasized the fact that to get a cure in any proportion of cases it might be better to start from above, clean out the pelvic connective tissue, lymphatics, the bladder, prostate and seminal vesicles and implant the ureters. When we have a safe method of implanting the ureters into the bowel, that operation will be done much more frequently than at present. Personally, I favor the operation from above, or combined, so that the bladder comes out with the prostate, seminal vesicles and the terminal ends of the ureters. The important thing is the determination of the functional capacity of the kidneys; the heart is secondary.

Ether is a poor anesthetic in these cases. The operation is preferably done in two stages: the first step should be done under local anesthesia, and the enucleation later under gas-oxygen anesthesia. Hemorrhage is of slight danger. I have had very few cases that caused alarm. When it comes to the postoperative care, I disagree with Dr. Braasch that you need extensive drainage; a small wick of gauze above and below the tube will protect the prevesical space adequately. I do not know how many cases I have drained that way, and I have never seen a phlegmon of the prevesical space. Forty-eight hours after a prostatectomy it is my rule to withdraw the gauze which has been buried in the prostatic bed, pulling out the gauze by the string, pull out the tube, wash the bladder out with hot saline, and then, either at once or twenty-four hours afterward, a small hard rubber cap is glued onto the small suprapubic opening and is attached with the mass of adhesive plaster. That is dissolved in benzine which is allowed to evaporate after thorough solution of the mass. It is smeared onto the lip of the cap and the cap is glued onto the suprapubic opening. All the urine runs out through two tubes in the cap and the patients usually keep dry. In dressing the wound the top of the cap can be unscrewed so that you can see what is happening at the wound, and if you wish to irrigate you can do so. As far as morphin is concerned, I disagree with Dr. Pilcher. I think it is a bad practice to use morphin practically, as he said, ad libitum. I think he did not mean to make it as emphatic as that. I believe the pain can be controlled by suppositories of opium and belladonna.

DR. JOHN T. GERAGHTY, Baltimore: I want to take exception to what Dr. Pilcher said about kidney function as revealed by the phenolsulphonephthalein test before and after relief of back pressure. I do not think we can reduce the kidney to a question of osmosis and diffusion. No substances go through it by osmosis and diffusion, except water. It has been shown definitely that phenolsulphonephthalein does not go through in that manner, that it represents true secretory activity, that it is picked up by the renal cells and excreted. Therefore, the presence of a big hydronephrosis could not have the influence Dr. Pilcher states. The explanation of the high phenolsulphonephthalein output is that it is due to an ascending infection or development of an acute nephritis. You do not get that grade of hydronephrosis in prostatic obstructions; it is very rare. Even in the very marked cases the grade of hydronephrosis is comparatively slight, nothing to be compared to what is produced by a slight obstruction in the ureter itself.

As regards cancer, we do not make the statement that cancer occurs in the posterior lobe in all cases, but that in cases of hypertrophy the cancer occurs, as a rule, in the posterior lobe. We have had only one exception to that. In every other instance we have found it in the posterior lobe. Where a cancer occurs in a prostate not previously the seat of hypertrophy the cancer can occur in any part of the prostate. The only reason it occurs in the posterior lobe when associated with a hypertrophy is that hypertrophy does not degenerate into cancer. I do not quite agree with Dr. Beer that in these cases it will be possible for us to do such an operation as the Wertheim operation. It practically means the taking away of the prostate, the seminal vesicles and the whole bladder, transplanting the ureters into the bowel or doing a double nephrostomy and clearing out the glands. Those operations will never be feasible in elderly men. Most carcinomas come at the age when we get prostatic hypertrophy—over 60—and the mortality would be entirely against the proposition. In the second place, we should not forget that these patients live for many years with carcinoma of the prostate. Carcinoma of the prostate is not a malignant type in the ordinary sense. Many of these patients live from four to seven years with comparative comfort. Some of the patients we see who are inoperable have had it for several years and live for three or four years. For that reason, in elderly men I do not think we are justified in doing these operations that involve such great risks.

DR. A. W. NELSON, Cincinnati: One case came under my care eight months ago. In this instance the gland was enlarged, hard, and irregular in outline. The hardness extended to the seminal vesicles. The patient would not listen to operative suggestions. I suggested radium. At my request Dr. L. J. Ranshoff gave him two treatments of radium, with no particular improvement. After having the patient under my care, irregularly, for about two months, I lost track of him. Later on I heard that he submitted to an operation, which was followed by death.

DR. GRANVILLE MACGOWAN, Los Angeles: This particular series of cases interested me much. Doing prostatic surgery since 1893 (when I did my first prostatectomy), I have seen a good bit of cancer of the prostate. I have seen cancer of the prostate in men as young as 34 or 35 years of age, but I find those people are much more interested in the preservation of the sexual powers than in getting rid of the cancer, and none of them would submit to operation. From November, 1913, to May, 1915, I operated on eight cases of distinct cancer of the prostate. In six, the dysuria had existed six months or less. In six, the rectal examination made over the shaft of a steel instrument in the urethra was negative as to thickening of the posterior lobe, and in five, negative as to cancer. In all, the organ was approached suprapubically for exploration and relief. In Case 2 the origin was in the acini of the right lobe. In Cases 3, 4 and 5 in the superior or anterior lobe, and two of these followed traumatism by a silver catheter. Case 1 had a prostatectomy, was comfortable for a year, but now has dysuria and vertebral metastases. Case 2 had a prostatectomy, was comfortable for a year and now has dysuria and sacral metastases. Case 3 had a channel cut and bit through the prostate, was comfortable for six months but died of metastases in September, 1915. Case 4 had a prostatectomy with perfect results and is alive and comfortable today. Case 5 had a partial prostatectomy and destructive treatment of the remainder with the d'Arsonval current, with perfect results and is alive and comfortable. Case 6 had a prostatectomy in two stages, with destructive treatment of the ragged capsule with the d'Arsonval spark. He is alive, urinates freely but suffers from general mestastases and will die soon. Case 7 had a partial prostatectomy and the destruction of the remaining growths by the d'Arsonval spark, is alive, and so far as can be observed by the cystoscope and urethroscope, perfectly cured. Case 8 had a suprapubic cystotomy for drainage, followed by a punch operation, the latter without merit. He is alive and fairly comfortable with his drainage apparatus. The lesson to be derived from this series is that a large percentage of the cases of cancer of the prostate, recognized before, or at operation, can be much benefited and sometimes, apparently cured, by a conservative prostatectomy, combined by subsequent treatment with the d'Arsonval spark, and that consequently they should not be abandoned as essentially hopeless.

Etiology of Eclampsia.—Eclampsia is still the field of contentious theories of causation and ideas of practice. As far as etiology is concerned we are not one whit wiser than we were ten years ago—or 100 years ago, when humoral pathology was in its prime.—J. B. De Lee.

BLOOD PRESSURE CHANGES INDUCED BY HOT AND COLD APPLICATIONS ON AND WITHIN THE ABDOMEN

FREDERICK S. HAMMETT, PH.D.
WITH THE ASSISTANCE OF
E. W. TICE, A.B.
AND
E. LARSON, B.S.
LOS ANGELES

In view of the fact that many surgeons are using hot and cold packs for one reason or another, on and within the abdomen either before, during or after abdominal operations, it seemed advisable to determine the effect of these agents on the organism. As changes in blood pressure are conveniently recorded, and as at the same time these changes are an important index of the condition of the patient, we have determined the changes in blood pressure produced by the application of either heat or cold on or within the abdomen.

We obtained the results herein reported when using cats as the subjects of the experimental study. The animals were anesthetized with ether. Records were made of the changes in blood pressure by connecting the carotid artery through a cannula with a mercury manometer so arranged as to trace the pressure variations on a smoked paper attached to a slow moving drum kymograph. Sodium bicarbonate solution of 1.080 specific gravity was used as an intermediary fluid.

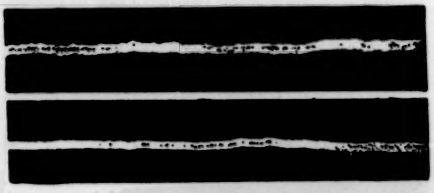

Fig. 1.—Tracing of blood pressure changes induced by cutaneous application of cold: *G*, cold applied; *H*, cold removed.

The application of the heat or cold was effected by passing hot or cold water approximately 25 C. (77 F.) above or below the temperature of the body from reservoirs through rubber tubing to and through a glass coil placed in intimate contact with the region studied.

The coil consisted of five turns of 5 mm. glass tubing, the total area covered being 7 by 6 cm. The coil was so suspended from a bar that the least possible pressure was exerted on the parts to which it was applied. Before the heat or cold was applied, sufficient time was allowed to elapse for the pressure tracing to become constant. The applications were then made for periods of fifteen minutes, then the coil was removed and the pressure curve allowed to return to its former level.

The experiments can be arranged in two groups. In Group A the applications were made on the external abdominal surface, thus giving the effect on blood pressure of heat and cold when externally applied on the abdomen. The hair was closely clipped from the abdomen in order to prevent loss of effective stimulation through dead air spaces in the fur. In Group B the applications were made within the abdomen in order to obtain the effect of heat and cold on blood pressure when used in this manner. The abdomen was opened by a median longitudinal incision and the coil placed within. The cut edges were approximated, and the wound closed by the use of bulldog clamps.

In both groups, control experiments were made by first applying the heat and then the cold and vice versa.

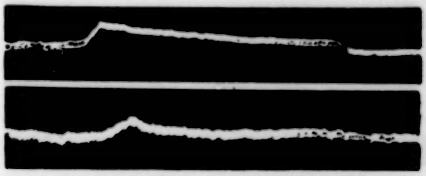

Fig. 2.—Tracing of blood pressure changes induced by cutaneous application of heat: *E*, heat applied; *F*, heat removed.

The change in sequence produced no significant change in the final result.

In a series of thirty-six experiments for which twenty-four cats were used, the application of cold on the external abdominal surface produced but little change in blood pressure, any variation observed being a tendency toward an increase. This is shown in Figure 1.

In a like number of cases the heat invariably produced a rise in blood pressure. This rise lasted as long as the heat was applied and decreased to normal shortly after the stimulus was removed (Fig. 2).

In Group B there were thirty-two experiments for which twenty-six cats were used. When the cold was applied there was produced a sharp fall in blood pressure, recovery from which was slow after the removal of the stimulus (Fig. 3).

As evidenced by Figure 4, the application of heat produced a like change in blood pressure.

We may say that the application of heat to the external abdominal surface produces a rise in blood pressure, while the similar application of cold has but little effect, any change occurring being in the direction of an increase. On the other hand, the application of both heat and cold within the abdomen invariably produces a sharp fall in blood pressure followed by a slow recovery to normal when the stimuli are removed.

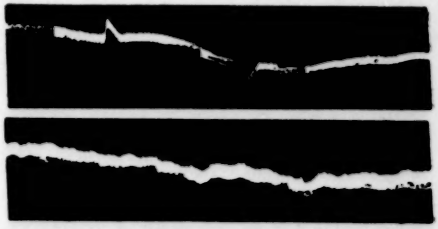

Fig. 3.—Tracing of blood pressure changes induced by cold application within the abdomen: *C*, cold applied; *D*, cold removed.

It is evident that the external application of either heat or cold to the abdominal surface sets into activity the vasoconstrictor mechanism with probable inhibi-

tion of the vasodilator mechanism, thus leading to an increase in blood pressure. It must be remembered that these applications are strictly localized, and set into activity the peripheral endings in the splanchnic area, in contradistinction to the work of Müller,[1] in which the external application of heat and cold was general with a general neural stimulation. Of practical importance is the fact that local applications of

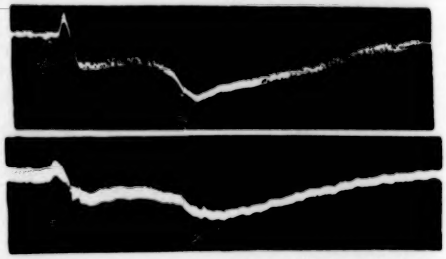

Fig. 4.—Tracing of blood pressure changes induced by heat application within the abdomen: *A*, heat applied; *B*, heat removed.

heat to the splanchnic or abdominal surface during anesthesia will produce a rise in blood pressure which may be able to counteract the fall caused by the anesthetic and thus permit the extension of operative procedure which otherwise might be prohibited through the condition of the patient.

When we consider the fact that either heat or cold within the abdomen produces a sharp fall in blood pressure, we can offer two general possibilities explanatory of this phenomenon. The effect of these stimuli is to set into activity the vasodilator mechanism. This is evidenced by the fall in blood pressure. According to Barger and Dale,[2] there is present in the intestinal wall a depressor substance, beta-iminazolylethylamin, which Dale and Laidlaw[3] have shown to exert a significant action on the vasomotor nerves leading to depressor effect. Mellanby, Edward and Twort[4] have demonstrated that this substance can be produced by the action of intestinal bacteria on histidin; hence the probability of the observed reaction being the result of hormone liberation is doubtful. The recent work of Burton-Opitz[5] on the effect of stimulation of the splanchnic nerve on blood pressure offers a more plausible explanation, and it is not improbable that the consistent results obtained in these experiments are the result of this stimulation.

However that may be, the fact remains that the application of either heat or cold within the abdomen during ether anesthesia invariably results in a decided drop in blood pressure. The practical significance of these findings is obvious. The cumulative depression occasioned by anesthesia plus that resulting from the use of heat or cold, not even taking into consideration hemorrhage and surgical shock, is obviously not conducive to the best interest of the patient. In the procedure wherein the abdomen is internally packed with ice after certain operations, care should obviously be taken to determine the blood pressure level before the application, inasmuch as a marked fall of blood pressure, which is sure to be occasioned by this measure, might well be an extremely dangerous occurrence.

It might be argued by some who carefully study the curves that the instantaneous or momentary application of heat or cold within the abdomen produces a sharp rise in blood pressure before the onset of the drop, and that this rise might well be beneficial or at least not harmful. This cannot be gainsaid, although we have produced evidence that after repeated momentary applications of heat or cold this rise does not occur, and the fall in blood pressure comes on immediately.

In view of these facts, it is evident that the use of hot or cold packs on or within the abdomen is attended by marked changes in blood pressure, and it is accordingly of importance to follow carefully, so far as possible, during and after operations, the blood pressure changes when these applications are utilized.

516 East Washington Street.

1. Müller: Deutsch. Arch. f. klin. Med., 1902, p. 74.
2. Barger and Dale: Jour. Physiol., 1911, **41**, 499.
3. Dale and Laidlaw: Jour. Physiol., 1911, **43**, 182.
4. Mellanby, Edward and Twort: Jour. Physiol., 1912, **45**, 53.
5. Burton-Opitz: Am. Jour. Physiol., 1916, **41**, 103.

CHRONIC MULTIPLE ARTHRITIS DUE TO BACILLUS MUCOSUS *

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About three years ago I[1] reported a case of multiple arthritis due to a Friedländer bacillus (*B. mucosus*). The present case was so similar to the former one that the resemblance was apparent from a casual examination of the hands, which were the parts most affected in both patients. As in the first patient,

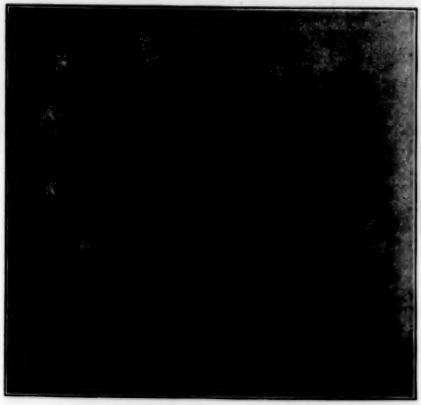

Fig. 1.—Appearance of left hand.

repeated cultures from the throat yielded many colonies of *B. mucosus*. Isolated in pure culture, the bacillus produced experimental arthritis in all of three rabbits which were inoculated intravenously.

History.—The patient, a Swedish woman, aged 30, has had arthritis for many years. She remembers having had medical treatment for it fifteen years ago, but has had the disease

* From the Memorial Institute for Infectious Diseases.
1. Dick, G. F.: Jour. Infect. Dis., 1914, **14**, 176.

much longer. The arthritis began insidiously and has been progressive. The joints are stiff, especially in the morning. They are somewhat painful, although the pain is never very severe. Using the hands usually makes the joints more limber. Aside from the arthritis, the patient feels "pretty well," except for habitual constipation.

The patient has had measles, chickenpox and whooping cough, and occasional attacks of bronchitis. She is married and has two children who are well.

Physical Examination.—The patient is a rather slight, thin woman. There is pyorrhea alveolaris; the tonsils are ragged but not enlarged. The pharynx is pale and covered with mucus. The cervical glands are palpable below the angle of the jaw. The physical examination otherwise is negative except for the hands. The urine is normal, the blood pressure 120. The Wassermann and gonococcus fixation tests are negative.

The appearance of the hands is well shown in the illustrations. The joints are nearly all affected, but the most marked deformity is that of the first interphalangeal joints. These joints are so distended with fluid that the synovial membranes have formed hernias through the joint capsule, resulting in soft fluctuating swellings. There is but little restriction of motion in the joints, no change in the skin covering them, and no muscular atrophy. Roentgenoscopy reveals some absorption and proliferation of bone; but such changes are slight, and the increase in joint fluid is the most striking change present. The fluid aspirated from a joint is very thick and mucoid. It is clear, and no cells are found in smears stained with Wright's stain.

Cultures.—The fluid from the joints yielded sterile cultures on aerobic and anaerobic blood agar slants and in agar shake cultures. A number of throat cultures on ordinary agar slants yielded many colonies of *B. mucosus.* Pure cultures of this bacillus showed the typical gram-negative short, plump bacilli with large capsules. The growth on ordinary mediums was thick, heavy and mucoid, and slightly fluid. The bacillus fermented lactose, dextrose and mannite with gas, coagulated and acidified milk, and did not ferment raffinose or saccharose.

A rabbit injected intravenously with one slant died the following night. The knee joints showed hemorrhages into the synovial membrane. *B. mucosus* was cultivated from the joint fluid.

A second rabbit injected intravenously with one tenth of an agar slant died in about twenty-four hours with findings similar to those of the first rabbit.

A third rabbit was injected intravenously with 0.5 c.c. of a slant of the bacillus suspended in 10 c.c. of broth. Two days later it was again injected with 1 c.c. of a suspension of one agar slant of the bacillus in 10 c.c. of broth. Four days after the second injection the rabbit died. Both knee joints showed the following changes: The synovial membrane was red, the joint fluid was increased in quantity, was turbid, and on microscopic examination showed many leukocytes and many bacilli of the typical *B. mucosus* morphology. The liver contained some small abscesses, which on microscopic examination contained granular detritus, many round cells and a few polymorphonuclear leukocytes. The kidneys showed degenerative changes, and on microscopic examination a cellular exudate into the pelvis made up mostly of polymorphonuclear leukocytes with some round cells.

BACILLI ISOLATED

Sugar	Arthritis 1	Arthritis 2	Pharyngitis	Rhinitis	Pneumonia
Dextrose....	Acid, gas	Acid, gas	Acid, gas	Acid, gas	Acid,gas
Mannite....	Acid, gas	Acid, gas	Acid	Acid	
Lactose.....	Acid, gas	Acid, gas			
Litmus milk	Acid, coag.	Acid, coag.	.....	Acid	Slight acid

Further experiments were not carried out in this case, as the results were the same as those obtained in the former case, in which by prolonged repeated injection of smaller doses of live bacilli a more chronic experimental arthritis was obtained which was an exact reproduction of that found in the patients. In one case of chronic experimental arthritis the joint fluid was sterile twelve days after the last intravenous injection. The histologic changes in this case are described in the previous report.

The bacilli isolated from the two patients belong to the same group of the Perkins classification[2] of

Fig. 2.—Appearance of right hand.

B. mucosus, while organisms which produced no arthritis in animals fall into other groups. This is illustrated in the accompanying table.

From the pathogenesis of these cases it seemed indicated to rid the throat of the causative organisms by such means as have been developed in the case of diphtheria carriers.

After tonsillectomy and vaccine treatment, the arthritis in the first case was so much improved that the patient was able to do housework without inconvenience. Most of the fluid was absorbed. During the four years that the patient was under observation, the improvement was permanent; but the throat was never entirely free from *B. mucosus* for any length of time.

The patient returned for several courses of vaccine treatment. During the courses the joints gave her no pain and remained painless for periods which varied from a few weeks after the first course to a year following the fourth course of vaccine.

SUMMARY

Two cases of chronic multiple arthritis have been described which resemble each other in every way. From the throats of both these patients there were isolated bacilli of the same group (1) of Perkins' classification of *B. mucosus.*

On intravenous injections into rabbits, the bacilli constantly produced an experimental arthritis which varied from an acute hemorrhagic inflammation to a chronic deforming arthritis.

2. Perkins: Jour. Infect. Dis., 1904, **1**, 241.

SPONTANEOUS ANASTOMOSIS BETWEEN TRANSVERSE COLON AND DUODENUM

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LOS ANGELES

Perhaps one of the rarest complications of carcinoma of the colon is perforation into another hollow abdominal viscus. These perforations may occur into the stomach, small intestine, bladder, or into another portion of the large intestine. Osler[1] says:

It is a peculiar fact that perforation of a carcinoma of the large intestine is more prone to occur into another portion of the large intestine than into the small intestine.

The rareness of spontaneous anastomosis between the colon and other hollow abdominal organs is emphasized by the report of Körte,[2] in which he made a critical analysis of 254 cases of cancer of the cecum and colon and did not mention this condition, and by that of White,[3] who, in a review of necropsies in 3,583 cases of cancer in the Vienna General Hospital, of which 343 were intestinal, did not record this complication. Even spontaneous benign visceral anastomosis is only occasionally reported. Voorhoeve[4] made a contribution to the roentgenologic as well as to the clinical diagnosis of gastrocolic fistula. Urrutia[5] made observations on jejunocolic fistula associated with peptic ulcer and reported a case, as did also Dorrance and Deaver.[6]

From the meager references in the literature concerning carcinoma of the transverse colon in relation to duodenocolic fistula, it would seem that this condition was exceedingly rare and that it was found only at operation or necropsy. The following case is of interest not only because of the infrequency of the condition, but also because it presented sufficient clinical and laboratory data for a positive preoperative diagnosis:

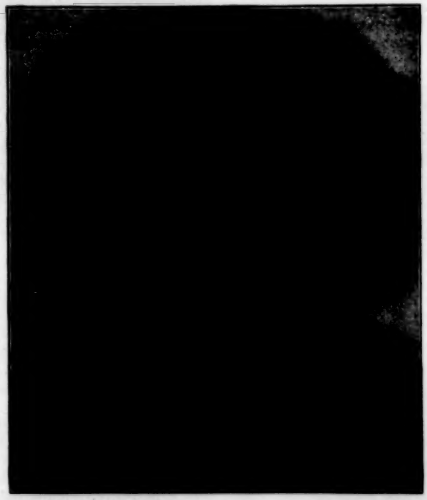


Fig. 1.—Roentgenogram immediately after bismuth meal, showing irregular greater curvature.

History.—M. D., man, aged 48, Irish, referred for gastrointestinal study, April 3, 1915, complained of diarrhea and marked loss of weight. The father died of cancer at 60 years. The mother died of pneumonia at 70 years. The patient was the fifth of eight children, all of whom were healthy. He was born in Ireland, where he lived until 18 years old, after which he came to California and then to Nevada, where he was engaged in mining. During recent years he had lived in Chihuahua, Mexico, where as overseer and owner he had been engaged in silver mining. As a child and young man he was strong, sturdy and healthy. He never had any kind of illness. The cardiorespiratory history was unimportant. He had always been a big eater and a hasty eater. He ate considerable meat. The bowels were regular, never needing a laxative oftener than once in three or four months. When 30 years old he had a "sick spell with his stomach." He vomited for eight or ten days, but had no pain. At first there was bile in the vomitus and later he had "empty vomiting." He remained in bed eight days, and during this time lost weight rapidly. He was working in quicksilver at the time, and his illness was attributed to quicksilver poisoning. During his entire life he had had very little flatus and never had any eructation of food or gas. He had had no kidney trouble. He denied history of gonorrhea or syphilis. He had never used tobacco or alcohol in excess. He had at times done hard manual labor. When 29 years old he weighed 210 pounds, and had kept that weight until his present illness. He had been married nine years. His wife had had no children and no miscarriages.

Present Illness. — About eight or nine months ago he had a "spell of indigestion following ingestion of badly cooked pork." The bowel movements were loose and frequent for a short time, but they were not watery. Following this attack he became very constipated, and had to strain considerably in order to have a bowel movement. As a consequence he developed hemorrhoids. They did not bleed, but there was some swelling and protrusion. After a few weeks of constipation he began again to have diarrhea. There were frequent, large watery bowel movements without straining. There was no mucus or blood. The hemorrhoids disappeared. There was no diarrhea at night, but it started immediately on arising in the morning or after eating. The more physical exercise, the more frequent were the bowel movements. There was very little flatus at this time, but the stools were very foul smelling. Appetite was good and there was no change in diet. No loss of weight was noted at this time. Nov. 4, 1914 (four months before), he had a hard chill followed by temperature as high as 103. There was considerable annoyance from gas and a pain in the region of the heart. On the second day the temperature was lower, but there was considerable soreness in the left upper abdomen which remained for some time. The diarrhea continued. For one week large doses of bismuth lessened the diarrhea, after which it was as bad as ever. He was then losing weight and strength. About Christmas time (three months before), he had another chill, but symptoms and rise of temperature were not so severe. He had with this attack "considerable gas in the bowels." At that time proctoscopic examination was said to be negative; the stools contained no blood or pus. On the supposition that it might be amebic dysentery, he was given emetin hydrochlorid, one-third grain hypodermically, every other day for two weeks, but with no improvement. He continued to lose weight and strength, and his eyes appeared glassy. Jan. 26, 1915 (two months before), he had a third chill followed by slight fever. He had some

1. Osler, William: Modern Medicine, **5**, 483.
2. Körte, W.: Die chirurgische Behandlung der malignen Dickdarmgeschwülste, Arch. f. klin. Chir., 1913, **102**, 653-660.
3. White, Sinclair: Brit. Med. Jour., 1913, **2**, 57.
4. Voorhoeve, N.: Die klinische und radiologische Diagnose der Fistula Gastro-colica, Deutsch. Arch. f. klin. Med., 1912, **108**, 294.
5. Urrutia: Cas de fistule jejuno-colique par ulcération peptique dur jejunum consecutive a une gastroenterostomie, Arch. d. mal. de l'app. digestif, 1912, **6**, 680.
6. Dorrance and Deaver: Internat. Clin., 1915, **2**, 235.

bloating, but there was no pain or soreness reported. The rectum was again examined and a small ulcer was said to have been found, and smears from it were said to contain amebae. Following this the patient was again given emetin hypodermically every day for four or five weeks, and also enemas of ipecac, opium and water. The patient was able to

Fig. 2.—Roentgenogram three and one-half hours after bismuth meal, showing bismuth residue below greater curvature of stomach.

retain these enemas four or five hours and sometimes all night. The bowel movement following such an enema often contained bright red blood. There was slight griping and soreness in the abdomen before and after a bowel movement containing blood. The Wassermann test at this time was said to be positive, following which the patient was given yellow mercurous iodid for a few days. While still taking the daily ipecac and opium enemas, he began to have attacks of vomiting, which had continued during the past four or five weeks. Medication was stopped. He would vomit after taking food of any kind, and at times there would be empty vomiting. The vomitus was never sour, and contained no mucus or blood, but was usually yellowish. Any solid food was vomited, and recently broth as well. The patient eructated large quantities of gas. At times he had noted the appearance of a swelling in the epigastrium, and felt "movements." This swelling always disappeared after vomiting. At other times he noticed a swelling in the right side of the abdomen and sometimes the entire abdomen would bloat. This could be relieved by an enema, and there would be large amounts of flatus expelled with the enema. He had had no pain or tenderness in the abdomen.

Physical Examination.—The cheeks were hollow and the eyes sunken. The hair and beard were gray. The skin was smooth, dry and loose. The mucous membranes were rather pale. The tongue was heavily coated. There was marked pyorrhea alveolaris, and the gums bled freely. The cervical glands were palpable but not enlarged. The inguinal, epitrochlear and supraclavicular glands were not enlarged. The heart and lungs were negative. The temperature was normal; pulse rate, 80; blood pressure, diastolic, 70; systolic, 90.

The abdomen was scaphoid in appearance, with no visible peristalsis or bulgings. There was dull tympany throughout, with no shifting dulness in the flanks. The relative hepatic dulness was normal. On palpation the abdominal muscles were everywhere resistant, but there was no general or localized rigidity or muscle spasm. There was no general or localized tenderness. The liver and kidneys were not felt. There was an ill-defined resistance in the left upper quadrant, with its lower edge on a level with the costal cartilages and extending obliquely across the epigastrium to the right hypochondrium. It moved slightly with respiration, and on deep inspiration the hand could be slipped above the mass, but on expiration it passed under the left costal margin and only a small part could be felt in the midline. It felt quite firm to the touch, and although somewhat irregular in outline, did not seem to be nodular. A notch could not be felt. The area of splenic dulness was normal. Palpation caused no pain, and elicited no tenderness. April 7, there was general abdominal distention. There were visible peristaltic waves starting in the cecal region and moving upward and inward, where they disappeared. An enema (soapsuds) relieved this general abdominal distention, the patient expelling large volumes of flatus. Later in the day, typical stomach stiffening was observed, which completely disappeared after the patient had vomited.

The deep reflexes were rather sluggish, but present.

There were a few internal, nonbleeding hemorrhoids. The prostate was normal. Proctoscopic and sigmoidoscopic examinations were negative.

Blood examination revealed: hemoglobin, 73 (Fleischl); red blood cells, 4,336,000; white blood cells, 10,000; 300 white blood cells showed: polymorphonuclear neutrophils, 74.3 per cent.; polymorphonuclear eosinophils, 0; polymorphonuclear basophils, 0.6 per cent.; small mononuclears, 16.3 per cent.; large mononuclears, 7.6 per cent., and transitionals, 0.6 per cent. The rather high cell count is misleading, as the patient had been vomiting constantly and there had been practically no fluid intake for many days.

The urine was amber, with a specific gravity of 1.030, no albumin or sugar, and a few hyaline and granular casts.

Fig. 3.—Roentgenogram of barium enema, demonstrating enterocolic fistula.

Fasting stomach wash (ten hours after last food intake) revealed: bile, positive; occult blood, negative; no free hydrochloric acid; no Oppler-Boas bacilli, yeasts or sarcinae. Otherwise it was unimportant.

After a test breakfast (Ewald), 15 c.c. were recovered at the end of one and one-half hours. The total acidity per-

centage was 10; free hydrochloric acid, 0; hydrochloric acid deficiency, 10; bile, negative; occult blood, negative; lactic acid, negative.

The stool (collected from above the hemorrhoid-bearing area) was a light chocolate-colored fluid, fermenting and very foul smelling, alkaline in reaction, positive for bile and strongly positive for occult blood. The microscopic examination was not remarkable except for the numerous pus cells,

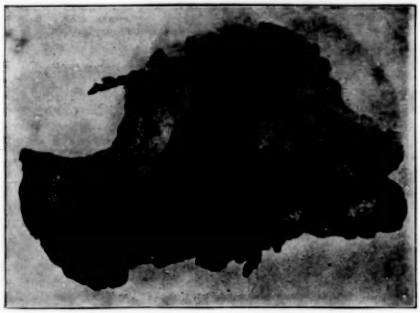


Fig. 4.—Photograph of gross specimen. *X*, *Y* and *Z*, when joined, formed openings, *A* into proximal colon, *B* into distal colon, and *C* into the duodenum, forming a duodenocolic fistula.

fat globules and starch granules. The little food ingested had been broth and gruels. Many subsequent stool examinations gave identical findings.

Specimens of the vomitus were frequently examined, and they showed constantly the presence of bile and no occult blood.

The Wassermann reaction in the blood was negative.

Before Roentgen examination it seemed that the following deductions and conclusions were justifiable:

A. Data indicating a cancer of the transverse colon:
   1. History of initial diarrhea followed by constipation.
   2. Pus and blood in the stools.
   3. Partial colonic obstruction.
   4. Palpable tumor.

B. Data indicating that the stomach was not involved:
   1. Occult negative vomitus and test meals.
   2. Absence of hydrochloric acid secretion in the stomach, not uncommon in cancer of other abdominal viscera.
   3. Constant presence of bile in the vomitus, and at times definite "stomach stiffening" relieved by vomiting material containing bile, pointed to a partial extragastric obstruction as a cause of frequent vomiting.

C. Data indicating an enterocolic fistula:
   1. History of localized peritonitis in the region of the tumor mass (chill, fever, localized pain and tenderness).
   2. Increase in the frequency of bowel movements during exercise and after taking food, with none at night.
   3. Undigested food particles in the stool, fat globules and starch granules (patient on a liquid diet).
   4. Diarrhea following a period of constipation with evidence of carcinoma of the colon.
   5. Persistent diarrhea, although associated with partial obstruction of the colon.

It therefore seemed that the only possible explanation of the foregoing group of findings was a carcinoma of the transverse colon complicated by an enterocolic fistula.

Roentgen Examination.—Three ounces of bismuth oxychlorid were given in 1 pint of buttermilk on a fasting stomach. The bismuth mixture entered the stomach normally. The greater curvature was somewhat irregular in outline, as shown in Figure 1; but on palpation this irregularity could be obliterated, suggesting that the moth-eaten appearance was due to external pressure on the stomach wall. There were no filling defects in the greater or lesser curvature. A good cap was not seen. The duodenum passed to the right across the midline and then downward and inward below the fundus. Although well defined, the duodenum did not seem to be distended.

Examination after three and one-half hours revealed considerable bismuth still in the stomach. Just beneath the greater curvature and in the region of the tumor mass, there was a constant irregular shadow, as shown in Figure 2, which could not be dislodged by palpation.

The six-hour examination revealed the stomach empty. The head of the bismuth column was in the transverse colon. The cecum and ascending colon were widely distended.

The ten-hour examination revealed the terminal ileum empty. The cecum, the ascending colon and first portion of the transverse colon were widely distended.

The patient had a liquid bowel movement at the end of twenty-two hours, but at the twenty-four-hour examination there was still a small amount of bismuth in the cecum and ascending colon.

Barium Enema.—Four and one-half pints of a barium sulphate suspension were given without any discomfort to the patient. Even though such a large quantity of the mixture was retained, the head of the column remained in the terminal third of the transverse colon. After vigorous manipulation over the head of the barium column, numerous loops of small intestine in that region were seen to fill, and later some of the mixture entered the other portion of the colon, gradually filling the cecum as well. This is shown in Figure 3.

The Roentgen examination showed no lesion of the stomach, but confirmed the diagnosis of carcinoma of the transverse colon with an enterocolic fistula.

Until April 9, 1915, the patient was fairly comfortable, with very little nausea and vomiting. At times there was some distention of the stomach, which was relieved completely by vomiting or lavage. At times there was general abdominal distention which was relieved by enemas. Late that afternoon the patient became markedly distended and nauseated.

Fig. 5.—Photomicrograph of tumor.

He vomited some fecal material. He had no pain, and the pulse was good.

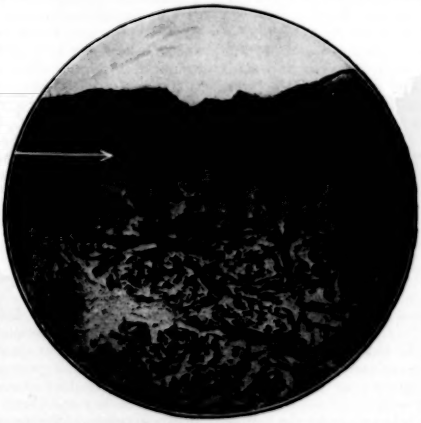
Operation.—It was evident that superimposed on the foregoing findings was an acute intestinal obstruction. The patient was operated on immediately by Dr. Rea Smith. The abdomen was filled with distended loops of small intestine. The large tumor mass of the colon had a distended loop of small intestine attached to it. Through this loop, an enter-

ostomy was quickly made. The patient returned to his room in good condition.

The enterostomy drained perfectly, and the following day the abdomen was soft and there was no pain. On the third day the patient began to have an occasional hiccup and eructation of gas. There was no pain or fever. The pulse was between 80 and 90. The next day there were considerable hiccup, nausea and vomiting, some of which had a fecal odor. The enterostomy was found to be free, and there was no distention. The pulse was from 90 to 100. The following day the vomiting continued, and the patient gradually became weaker, and died, April 15, 1915.

Necropsy (April 16, 1915).—A tumor of the distal half of the transverse colon was found, which was freely movable. Aside from a few recent adhesions to the greater curvature, the stomach was normal. The duodenum was distended, and entered the tumor mass 9 inches from the pylorus. The enterostomy opening was 3 inches distal to the tumor mass, thereby affording drainage for the small intestine, cecum and ascending colon, but not affording drainage for the duodenum. The obstruction was not complete, for fluid forced into the tumor mass from either of the four intestine ends would emerge from the other three. The openings from the duodenal and colonic sides, however, would just permit the passage of a small probe. When the large intestine through the tumor mass was opened, the cancer was seen to extend completely around the colon, and to include on one side about half of the wall of the duodenum (Fig. 4), thereby forming a fistula between the duodenum and the transverse colon. There were a few enlarged retroperitoneal glands; otherwise the examination was unimportant.

The pathologic report and photomicrograph (Fig. 5) by Drs. Brem, Zeiler and Hill showed the tumor to be an adenocarcinoma.



Deposit of iron in the skin showing as Prussian blue after treatment with potassium ferrocyanid; tissue stained with Van Gieson's method.

COMMENT

Some features of this case, aside from those outlined above, deserving special attention are:

1. The value of the Roentgen examination in confirming the clinical diagnosis.
2. An instance of true "stomach stiffening" without pyloric obstruction.
3. The possibility of a double intestinal obstruction should not be overlooked.

412 West Sixth Street.

The Rittman Process.—*Commerce Reports*, January 22, says that the Rittman process of breaking up petroleum products has now issued from the experimental stage, and has taken its position as a recognized industrial asset. By this process vast quantities of petroleum waste hitherto used practically only for fuel purposes can be transformed into gasoline, for motor engines or into benzene and toluene for the manufacture of picric acid and trinitrotoluene. They also form the starting point for the synthesis of an almost endless variety of dyestuffs, medicinals, flavors, perfumes, etc. It is said that the by-products of the coke ovens of the country are at present sufficient to meet the demand for making the variety of chemicals referred to, but the Rittman process will serve to help out the gasoline supply. The process is thoroughly protected by patents, but no license fees or royalties are required in the United States.

BROWN STAINS IN THE SKIN FROM WET DRESSINGS OF A SOLUTION OF COPPERAS

WILLIAM ALLEN PUSEY, A.M., M.D.
CHICAGO

Miss M., aged 55, consulted me in February, 1915, for a peculiar permanent punctate staining of the skin. On first glance the picture strikingly suggested a follicular purpura in an unusual location. At the sides of the neck, over the shoulders and deltoid regions, and about the wrists and elbows the skin was peppered with yellow to dark brown stains. There were a few such stains on the feet and over the lower back. The individual lesions for the most part varied from the size of a pinpoint to that of a pinhead, with a few about the elbows 4 or 5 mm. in diameter. The spots were flat or slightly depressed, some of them showing punctate slight scarring. The picture closely resembled one of powder stains, except that the individual stains instead of being bluish black were yellowish brown. The skin was otherwise normal.

In the previous autumn the patient had had a violent outbreak of weeping dermatitis which had been attributed to poison ivy. It had been treated, according to her statement, with many applications, including a solution of lead subacetate, a chalky mixture and a grayish black solution which contained ferrous sulphate and vinegar. Her physician reported that this solution consisted of ferrous sulphate, 1 ounce, to vinegar, 1 gallon. At the time of the application of wet dressings of the solution, there was a violent dermatitis with a good deal of suppuration. The dermatitis finally healed under salves of unknown composition. The brown spots appeared in the skin after the application of the wet dressings of copperas solution and had remained. I first saw the patient four or five months after they had developed, and she thought the skin had not changed since their appearance. Ten months later she reported to me that they were, she thought, slightly fainter. She reported to me in September, 1916, almost two years after the stains were formed, that the spots were growing lighter.

One of the stains was excised for examination. It was hardened in 4 per cent. dilution of liquor formaldehydi and embedded in paraffin.

The epidermis over the pigmented spot was practically normal, showing, however, slight parakeratosis and scaling. As usual in scars, the papillae were destroyed, and the line of juncture between the epidermis and corium was flat.

The deposit of pigment in the skin is shown in the accompanying illustration. There were in the section two areas of pigmentation like the one shown. The pigment was situated in the subpapillary layer, with a thin zone of clear connective tissue between the pigment and the basal layer. In unstained sections, and in sections stained with hematoxylin and eosin, the pigment was of a light yellowish brown rather closely resembling melanin. Examined under the high power, it was seen to be composed of definite amorphous granules. These granules were not scattered diffusely through the area, but were in masses and clumps which varied greatly in size. The pigment for the most part lay between the fibers of the corium and between the cells of the inflammatory infiltration which

surrounded it; but frequently clumps of pigment were found arranged about the nuclei, having either partially or wholly replaced the protoplasm of the cell. In some cases both the protoplasm and the nucleus appeared to be filled with pigment.

Around the deposit there was an inflammatory infiltration rather definitely confined to the area of pigment deposit. The infiltration was mainly perivascular, but it was found throughout the deposit. The cells were chiefly small round cells with some epithelioid cells.

To determine positively that the pigment was iron, sections were tested with ammonium sulphid and potassium ferrocyanid. Ammonium sulphid turned the pigment black, the remainder of the section remaining unstained. Sections were treated with dilute acetic acid solution, and then with potassium ferrocyanid solution. This turned the color of the pigment deposit to the characteristic Prussian blue. As a control, in order to determine that the amount of iron in melanin is not sufficient to produce these reactions of iron, sections of a deeply pigmented mole and of pigmented sarcoma were tested in the same way for iron. Neither test produced any discoloration of the melanin.

The explanation of the accident undoubtedly is that the ferrous sulphate in the vinegar solution came in contact with points where the skin was destroyed down into the corium. The alkaline lymph at these ulcerating points caused a precipitate of organic iron compounds which were ultimately oxidized into ferric hydroxid. This ferric hydroxid, or oxid, an insoluble substance in the blood plasma, remained as permanent stains in the skin.

It is very rare for accidents of this sort to happen, although insoluble substances are constantly applied in eczema and dermatitis. The reason for the rarity of the accident lies in the fact that unless a dermatitis is very severe, the deep layers of the epithelium are not thrown off. If an insoluble powder becomes entangled in the epithelium, it is gradually exfoliated. A stain will occur only when the epithelium at points is completely destroyed and there is ulceration in the corium, so that particles of pigment can be deposited in the corium itself. If this accident happens, healing takes place by the formation of connective tissue around the deposited pigment; there is then no chance for exfoliation to take place, and permanent stains are left, exactly as in gunpowder stains or tatooing. This case and one or two others that I have seen suggest the danger of using insoluble applications in cases in which there is a complete destruction of the epidermis or ulceration, no matter how minute the ulcers are.

I am told that particles of iron in the eye usually in time completely disappear. These particles are too large to be removed by phagocytes, and if they disappear it must be by their gradual solution. This suggests the possibility of the ultimate disappearance of iron stains in the skin, but the course of this case thus far indicates that this disappearance, if it takes place, will be only after a very long time.

7 West Madison Street.

Common Colds.—The phrase "common colds" like "charity," covers a multitude of sanitary sins, and curiously enough, the name has been applied to a group of affections which far from depending absolutely on cold are frequently the direct result of living in close, overheated surroundings having a lower relative humidity than the dryest desert known to man. —*Health News*, U. S. P. H. Service.

THE USE OF KEPHALIN TO HASTEN COAGULATION AND HEMOSTASIS AFTER SURGICAL OPERATIONS *

H. L. CECIL, M.D.
BALTIMORE

The need of hemostatic gauze to be used where packing is now necessary in deep seated operations, such as perineal prostatectomies, in which bleeding occurs within the prostatic capsule from which large hypertrophied lobes have been enucleated, has long been recognized at this clinic. This hidden intracapsular bleeding is often considerable, and many strips of iodoform gauze tightly packed within the prostatic capsule have often been necessary, and are even then not entirely successful. Accordingly I have experimented with a gauze impregnated with kephalin, which was shown by Prof. William H. Howell to be the best clot forming substance. Following his methods I have made kephalin from the brains of hogs.[1]

The gauze is prepared as follows: The kephalin is dissolved in an excess of ether, about a 5 per cent. solution being made, and this concentrated kephalin solution is poured over gauze strips 6 feet long and 6 inches wide. The packs are then folded, rolled, wrapped in two muslin covers and sterilized in the steam autoclave at a temperature of 120 C. for ten minutes. The heat necessary to sterilize them effectively does not interfere with the coagulation action of the kephalin.

Kephalin-coated catheter used in "punch" cases.

As soon as we began using kephalin gauze packs, it became evident that hemorrhage ceased much more quickly than when iodoform gauze was used, and that it was unnecessary to introduce so much gauze as previously or to pack it as tightly within the capsular cavities. This was at once a great advantage. Another effect was that the postoperative bleeding which came through the bladder drainage tube diminished rapidly. The gauze has now been used in thirty-four perineal prostatectomies. In many of these cases the urinary drainage has been clear from four to six hours after operation, and in nearly all other cases it is clear on the following morning. In only four cases has the drainage remained bloody for forty-eight hours, and I believe that in these cases the packs did not reach the bleeding point, as the bleeding may have been from a torn piece of mucous membrane at the bladder orifice. When these packs were removed there was only one case in which more than slight bleeding occurred, there being about 150 to 200 c.c. of blood lost. In the majority of cases there was scarcely enough blood to stain the dressings, while many of the patients did not bleed a drop, if one can judge by external appearances. It is important to mention in this connection that fewer packs were used than had been used previously, and thus tension within the wound by very tight packing in order to stop the bleeding was avoided. This would undoubtedly be of even greater importance in other branches of surgery than in urology.

After our success in prostatectomy it occurred to me that the bleeding which occurs after Young's "punch"

*From the James Buchanan Brady Urological Institute, Department of Urology, Johns Hopkins University and Hospital.

1. We are now using kephalin made by Armour & Co., at my suggestion.

operation — or median bar excision — might be stopped by a kephalin coating to the catheter drain which lies within the wound at the prostatic orifice. The kephalin-coated catheters were prepared as follows: A very concentrated solution of kephalin in ether was made and smeared on the terminal 3 inches of a large gum coudé catheter, the tip and eye of the catheter being left uncoated. This coating was best secured by allowing the solution of kephalin to drop on the catheter, which is being revolved at the same time. This coat is about 1 to 2 mm. thick, and surrounds the catheter, as shown in the illustration. The catheter is then sterilized in a glass tube by steam in an autoclave at a temperature of 120 C. for ten minutes. In this way a large amount of kephalin is brought into direct contact with the cut surface at the vesical orifice.

The kephalin has been used in four "punch" cases, the catheters being prepared as described above. Whereas previously these patients had frequently to have clots evacuated from the bladder, it was necessary in only one of the cases in which it was used, and in this case the clot was very small, being only large enough to plug the eye of the catheter. Though it has been tried in only a small group of cases, the results seem to be a striking improvement over the plain or iodoform gauze which has been previously used in all of the perineal prostatectomies, and if one is allowed to judge from four "punch" cases, the result in these cases was still more striking, as there was practically no bleeding at all.

With such results as these to report it seems well to say a word of caution in regard to the method of using kephalin. I believe, from the few times I have seen it tried, that if the gauze soaked with kephalin is used to sponge wounds, no good result is produced, since the sponge takes away with it the clot before the vessel is plugged. In a like manner the smearing of kephalin on a wound to prevent bleeding is equally open to criticism. It appears to me that both of these methods are theoretically and practically open to objection. The widespread recommendation of such an application may serve to condemn a method which if properly used would be of very great benefit to surgery.

Dr. A. D. Hirschfelder, also following the work of Howell, has used in an experimental way the same substance, but in a more impure form. He found that it was of great benefit in bleeding from bone.

CONCLUSIONS

The following conclusions may be drawn:

1. Kephalin causes a quicker and firmer clot.

2. Not as much pressure in packing is required to control hemorrhage as when plain or iodoform gauze is used.

3. When the packs are removed, the clot is of sufficient firmness to prevent bleeding. This is not true of other packs.

Comment by Dr. Hugh H. Young.—Active hemorrhage and slow oozing, which together amount to considerable loss of blood in a few cases, have been a well recognized complication after all forms of prostatectomy. In perineal prostatectomy the gauze packs can be so placed under visual guidance that this complication rarely causes any harm. As a result, the mortality is much less than suprapubic prostatectomy. In some cases, however, many strips of gauze tightly packed in the capsular cavities were necessary to stop the bleeding. This mass of gauze was objectionable — particularly when time came for its removal.

This new kephalin gauze is unquestionably of great value; the capsular bleeding ceases as a rule very quickly after the insertion of a small amount of gauze, and much less packing is required. The large single retention catheter with a kephalin coating acts like magic in the median bar "punch" cases, and removes the one objection to this simple, safe and satisfactory operation.

THE FREEDOM OF THE MEDICAL PRESS*

EDWARD C. REGISTER, M.D.
CHARLOTTE, N. C.

I have chosen a most serious theme, quite well realizing that, far more than we dream, we are making history in our deliberations. The subject may sound somewhat strange. To many of us, the freedom of the press is an accomplished fact, and we listen to the term as one listens to the battle-cry of some ancient age. It is, therefore, not an easy subject to discuss, for two reasons. First, as I have said, we are very prone to take for granted that the freedom of the press is one of the fundamental liberties that were wrought out and won by the heroic endeavors of our fathers, and that it is a fixed and immutable heritage of us, their sons, and as changeless as the process of the stars. The second reason for the difficulty of my theme is that unconsciously we think of the freedom which is ours, either political, industrial or religious, as a right that can be destroyed only by governmental tyranny, and we console ourselves that the freedom of the press has no enemy. But I remind you of the words of a great patriot, that "eternal vigilance is the price of liberty." And the freedom of the press is an essential part of that larger liberty of mankind which has been the object of the evolution of government and of the people. So important did our fathers consider the freedom of the press that many of our states saw fit to write it into their constitutions, and you are quite well aware that it forms a part of the constitutional history of the older nations. We must realize how essential to all liberty is the liberty of the freedom of expression of ideas. I know of no greater proof of the worth of the freedom of the press than the fact that military despotism even today must limit that freedom among the warring nations, in order to make military government possible.

But, you will inquire, in what way is the freedom of the medical press endangered? Am I not uttering a false alarm? Am I not calling to arms men when no enemy threatens? Let us consider this matter deeply and calmly. In the beginning of the consideration, let me say in all justice to those who differ with us that I do not say that any man, or company of men, is trying to defeat that freedom of the press which we so highly esteem. The men and the movements of which I speak would be, perhaps, the first to disclaim any desire or purpose to put on the medical press a censorship which would practically destroy this freedom. I say this in justice to them. Still, unconsciously those things can be brought to pass which we come too late to see are destructive of the best in our scientific life. Let me give an illustration: The wind and rain of ages covers the ancient Roman forum with a fine coating of débris and dust. To no one generation was this

* President's address, read before the American Medical Editor's Association, New York, Oct. 25, 1916.

process visible, but each generation and each country added to the layer of dust until, in our modern age, Byron stood and looked out on a wilderness that was once the heart of Rome and saw the top of a single shaft where once the pride and the pomp and the beauty of Rome were centered. The sphinx will again illustrate this process. But these are only two illustrations among many. It is in this gradual, and sometimes unconscious way that the best possessions of mankind are lost. And it is my purpose to call your attention to some of those things that seem, slowly and unconsciously, to threaten the freedom of the medical press.

In my judgment, the greatest enemy of this freedom is the attempt on the part of some very good and sincere men in our profession to put the medical press officially and irrevocably under the medical organizations — the different state medical societies — and to destroy beyond repair the privately owned and edited journal. Let us scrutinize closely this movement. In the first place, on account of the interlocking and ramifying systems of medical associations, the officially owned and edited medical journal becomes a unit, to such an extent that there will be, practically, but one official medical journal in all our profession. Just as the policies of all medical associations are coming more and more to be controlled and directed by the great parent American association, so all officially owned medical journals must more and more come under the dominance and powerful influence of the central journal. Surely he is blind who cannot see this evolution. One compact and all-inclusive organ will be as necessary for the official journals as it is for the official associations. What will be the result of this? That the entire medical press, if the privately owned journal is whipped from the field, will be under the management and direction of what will practically be a central board of censorship. This is precisely that condition of the secular or political press against which English and American democracy struggled through long generations.

We find a perfect parallel of this development in the industrial world. So powerful and so compact did industrial organizations become that America awakened to find that large communities of workers had been reduced to a point of industrial serfdom, and that thousands on thousands of the honest toilers of our land lived and moved at the command of some single great central organization. I would not have you understand that, in my opinion, this movement was without its beneficial aspects. I am trying only to point out that powerful and unified organization tends, at least, to destroy individual freedom both in thought and in policy. So much does it tend in this direction that the greatest statesmen of our day have given themselves to the hard task of saving industrial liberty out of the hands of the predatory trusts without destroying the efficiency of commerce.

It is precisely this possibility to which I call your attention in the present-day movement among medical associations. Compact and powerful organization is a thing to be desired, for many reasons; but we need to be eternally on our guard lest we lose more than we gain. Let us be very specific for a moment. Let us suppose that all medical journals are brought under the official control of medical organizations, and that those organizations are more and more closely united and compact. Who will be the dictator of the editorial policies of the medical press? It is not difficult to answer this question. There could be found no local association or local journal that would have the power to resist the influence and control of a great central press without a great deal of timidity or without jeopardizing his relations to the great central medical press. Even now, our great central association and our great medical association journal dictate the policies of every state medical journal and possibly two thirds of the policies of every state medical society. As I have said before, I repeat that we would, practically, have but one medical journal in America; there would, practically, be but one expression of opinion, and that would be the opinion of the few in control of the great central association and its journal. For some reasons, this might not be a bad thing. Monarchy has its strong features; but to quote an illustrious statesman, "No man is great or good enough to control the expressions of opinion of a great profession such as ours."

To those of you who may be doubtful whether or not we are threatened by any such thing, I would say, examine the condition of the public press in Russia. See how it is controlled by a central board of censors, and you will quite fully realize how little liberty is possible under such conditions. The Russian bureaucracy is too well known to need description here, and it is almost unnecessary that I should say that in our profession of medical editorship we want no bureaucracy; and our greatest defense against such a calamity is to see clearly just in what direction the present tendencies in medical organizations and in the medical press are tending.

In the system of officially owned and controlled medical journals there is far too fruitful a field for the medical politician. It is a well known fact that the medical associations, as every other association known to man, is often dominated by a political clique, certainly so far as the distribution of honor and the places of power are concerned. This is always true where individual ambition and success depend so largely on the publicity which can be obtained through the press. This condition makes it possible that the selection of an editor for such an organ is not always on the basis of merit. With your permission, I will declare it as my belief that the freedom of the medical press is greatly hampered when an editor must depend for his election, or his reelection, on a majority vote of the medical association, or when his journal must succeed or fail according to the pleasure or displeasure of the society politician.

In addition to this, the control of the medical editor of the official organ involves a too frequent change in editors. No one knows better than we how long must be the training of the man who becomes an efficient director of a medical publication. Long and weary years in apprenticeship, disappointments, struggles and work must be the discipline of him who seeks to be an efficient spokesman and publisher in the interest of the world's most vital profession. This training cannot be had, in the nature of things, when the editor must be changed with the changing official life and control of the association. From the standpoint of mere efficiency, the selection of an editor must depend on the merit and not on those qualities of popularity and good fellowship which so often secure for a man favor and votes. In the years of the centuries that are gone the dependence of a publisher or editor on some monarch's whim, or worse still, the whim of some monarch's favorite, was precisely the condition that made the freedom of the press impossible.

Again, an officially owned journal has a life that is not dependent on the value of its product. It is officially supported and can exist independent of popular approval or disapproval, a condition that has always limited freedom in the exercise of popular judgment and selection. This is precisely why it is possible to charge 3 or 4 dollars for a journal worth about 80 cents. In reply to this charge that we editors of private journals are selling medical literature that has a commercial taint about it, it is very easy for us to rejoin that their system enables them to sell medical literature that is without commercial value. The official organ can sell its produce by force of organization. The independent medical journal must obtain a market by force of merit, only.

Referring to the medical association journal, it must be clear to every one who is familiar with the question that it is not for the best interest of the medical profession for medical associations and medical journals to be financially and politically too closely related. I have known the whim or capricious desire of one influential man in a medical society to cause good men to lose their official position. This cannot be when a medical journal is independent. The editor can go about his task unafraid of all things save his own inefficiency, and can be true to his own ideals without a continually haunting fear of incurring the displeasure of some powerful clique and losing his position, through the failure to do the bidding of aught save the truth.

I think that no cultured, professional gentleman will question the statement that lack of competition is one of the surest roads to tyranny and injustice and corruption. One needs but to look on the industrial world to realize the truth of my statement. Our wisest statesmen continually remind us that competition is in many ways essential to industrial success and freedom. At this point, it behooves us to be most serious and careful. In the plan of the officially owned medical journal there is no place for competition. One state medical society journal cannot compete with another, and certainly it would not be wise for them to differ in opinion or policy with the great national medical journal. And who will deny that lack of a fair and spirited contest in the field of journalism is just as destructive of freedom as it is in the field of industry or of government or in any other calling in which we might be interested?

Again, I call attention to another serious menace in this system of officially owned medical journals. The freedom of any press depends largely on the open forum which its columns furnish for the free expression of honest opinion and totally without prejudice. In the system of privately owned and competing journals, there is the broadest possible opening for such an expression of medical opinion; but in a system of centrally owned and controlled journals what will become of this open forum? It will lie in the power of a few men, and often of one man, in all this nation to see who shall gain entrance to the columns of the American Medical Association journal and what opinions shall be given expression there. The editor of a state medical society journal also has this power.

There is no appeal in this circumstance. If his paper is refused by his state medical society editor, it must find its way to the waste basket. I need not call your attention to the fact that such a condition would practically make the freedom of medical opinion merely a word having no reality or respectability, and each of us would be compelled to sue at the feet of some central board or of some sanctified individual to be allowed to give expression to our medical opinion, or to give publicity to a remedy, an apparatus, a fixture, or a machine which we had found to be of value to mankind.

Let us turn now to consider those elements of the privately owned journals which seem to offer the best guarantee for freedom and efficiency in the medical press. In the first place, its financial and professional success depend wholly on its ability to meet the need of the profession. Its excellence and its real scientific value to the medical world are its only assets. It has no artificial subscription list. No physician is allowed to purchase it, and its management is forced to give an adequate return for its subscription price and to gain subscribers through its ability to serve. To put the matter squarely, it must win its life through service, and service not only to the whole profession but also to mankind. It cannot, therefore, be unmindful to the voice of the profession, nor can it ignore a democratic expression of opinion. Quite a little bit of our therapeutic knowledge has been derived from quacks and irregulars.

Again, medical journalism may well learn the lessons of the broader journalism of the world of which it is a part. In this broader journalism, it is the free and privately owned periodicals which have come to the place of greatest power. The London *Times*, the New York *Evening Post*, the *Outlook* and many others are an illustration of the excellence of independent journalism. In comparison with these great newspapers where stands your political organ? It is very easy for one to see that the independent secular press is growing in power and prestige, and the officially owned organ is becoming less and less in the world of politics.

The privately owned medical journal is without the power to oppress. By the process of competition, of which I have spoken, the medical public has its remedy. If it should enter into the purpose of the editor of a private medical journal to be dictatorial, unfair, to shut his columns to those in whom he has no personal interest, or to make of his journal a means for the attainment of his own selfish purposes or ambitions, or to lend its powerful influence to those ideas or remedies which are either untrue or fraudulent, he would find himself without a constituency and the medical profession turning to some other journal for enlightenment and medical literature. It is this law of competition which forces men in all departments and activities of life to seek to render honest and efficient service, and it is precisely this competition which the official medical journal would not have, and this lack, as I have pointed out, would become a great menace to medical journalism.

Again, if we may be allowed to adopt the standard set by mankind's wisest spirit, and judge the tree by the fruits thereof, I make the unhesitating claim that the wisdom of the system of privately edited journalism is established beyond all question of cavil. He would be a bold man, indeed, who would dare to give aught but praise to the great journals of Europe and America that through the centuries have won to honorable leadership in the world of the medical press and to places of power and influence in all the journalism of the world. The reading of their names sounds like an honor roll: I have in mind the London *Lancet*, the *Edinburgh Medical Journal*, the *Glasgow Medical*

Journal, the *Dublin Journal of Medical Science*, the *London Medical Times*, the *Liverpool Medico-Chirurgical Journal*, and in our own country the *Medical Record*, the *New York Medical Journal*, the *American Journal of the Medical Sciences*, and others.

They have not been backed by official organizations. They won their places of distinction by excellence and efficiency, and as long as there is a medical profession, so long will honorable mention be given to these journals and their editors. Judging, then, the tree by its fruit, are we not abundantly justified in claiming for the tree, the privately controlled medical journals, not only strength and golden fruit, but a green immortality?

I am well aware that this debate really centers itself in the question of the censorship of advertisements. It is very boldly claimed by those who favor official medical journals that it would thus be possible for the medical profession most easily to censor the advertising columns and to defend the profession and the public from medicines and prescriptions that are novel, untried and dangerous. In point of fact, we all know that this is the storm center of the discussion with reference to the medical press. Now, just what is the truth in reference to this question? In discussing it, let us try to rid ourselves, as far as possible, of all prejudgment, self-interest or desire save for the good of our ancient and honorable work. Let me say that the nation-wide movement for pure advertising that has become such a distinct characteristic of present-day journalism began in, and was fought most energetically by privately owned, weekly and monthly medical periodicals. I cannot find that a single political, official organ raised its voice in favor of the war against quack advertising and impure foods until the fight had, practically, been won by the independent journals. This fact alone should close the mouth of those who contend that a free, independent journal of any kind is incapable of purifying its advertising columns.

In the second place, the most powerful incentive to the medical journal to defend the public and the profession from unsafe and untried remedies is its dependence on the respect and good will of the men of the medical profession. It has no other support. It cannot hope to gain subscriptions by mere official standing. It is compelled to appeal to the sane, righteous judgment of the highly trained physicians and surgeons who form its constituency. And I venture to make the statement that there is not a journal represented here so powerful or so rich that it could continue to exist if it dared to sell its advertising space merely to the highest bidder. If the official organ is censored by the central Council on Pharmacy and Chemistry, the independent journal is censored by the wide medical profession. And, who is the best judge after all, of the therapeutic value of medicine: a board of expert chemists, or a trained practicing physician or surgeon? I think there can be but one answer to this question. The methods of the Council on Pharmacy and Chemistry of the American Medical Association have accomplished a great deal of good, and, no doubt, they will continue to accomplish good. There are many reasons, however, for intelligent physicians, physicians whose integrity is beyond reproach, whose training and judgment are unquestioned, to conclude, after deliberation, experience and investigation, that many proprietary remedies of unquestionable value have been condemned by the Council. We indulge in discussions in every other interest of life, in every other department of our science, in every other branch of our professional work, and why is it amiss for us to differ with the opinion of the members of this great council on pharmacy? Why should not the members of this great association discuss every phase of our professional work to the end that our society may promote, with utmost fidelity, this vital function? In the matter of advertising, the members of this association follow the practice and high precedents of all the great English and Oriental medical journals. We have tried to imitate their work, their policies and the methods of the administration of their great men.

We have always been, and are now, in perfect accord with them in every honest and useful way. And the association of men of such distinguished spirit is, I boldly claim, the best censorship, not only on advertising but also on every other policy of our journals that could be obtained. A member of this association may not be censored by the Council on Pharmacy and Chemistry of the American Medical Association, but his work is censored by the great and noble men in whose company he labors and to whose association he belongs. He would do nothing that would lower the high standard that has been set by the best of English and American journals. And I, for one, am quite convinced that this is the most purifying and restraining process to which editors can be subjected. Just one other word on this point: I solemnly warn the medical profession against putting into the hands of a few men, however good or however distinguished they may be, the power that must, necessarily, be in the hands of an official council on pharmacy and chemistry. In saying this, I reflect on no person. So far as I know, there is no present isolated or specific cause for complaint. Still, here is a danger we should acknowledge, watch and fear.

Again, I dare to warn the medical profession against a bureaucracy that would make possible in the future a condition that might bring shame to our whole profession. There are instances in history that might well cause us to think deeply at this point. Military boards that have had in their hands the passing on the supplies of ammunition on which their nation depended have sometimes been known to be untrue to their trust and to be influenced in their purchases and in their selection of munitions of war by motives that did not spring from patriotism. Such is the danger of putting too great power in the hands of too small a committee of men. Again, reasserting that this is in no way understood to be a reflection on any man or men in the present organization, I call the profession's attention to this element of danger that might arise in the years to come.

If the freedom of the press has been a thing of value to the world, if it has been worth the price that mankind has paid, then the freedom of the medical press is, perhaps, the most valuable element in such independence, for precisely the reason that the medical press carries more of the real weal or woe of mankind than any other present-day agent of publicity. You will, no doubt, agree with me in expressing the sentiment that the freedom of all other newspapers and periodicals, of every kind and name, could be lost with less evil effect on mankind than that which would follow the destruction of the freedom of the medical press.

That we may know the value of our freedom, let us think a moment of the vital nature of our work. We

form a forum for the open discussion of those questions which vitally affect the physical weal of man, and it is through this discussion that truth is established. The reason for the great value of discussion is not far to seek. The view, the theory or the investigation of an individual or a minor group of men is liable to many errors, arising from their inability to investigate all conditions from every angle and from every point of view. It is only when the subject is open for discussion through the medical press and the world-wide profession, and the powerful and acute criticisms of the learned and scientific men are brought to bear on it, that truth is finally established. Our Council on Pharmacy and Chemistry is not approachable. Its members are as secluded as the pope of Rome. Do you think for a minute that they would discuss their opinions with you? We cannot meet for discussion except rarely and in small groups in medical associations, but in the medical press a platform is furnished for the expression of opinions of the universal brotherhood of physicians and surgeons. Too great an emphasis cannot be laid, therefore, on the value of our great brotherhood of medicine, and of the medical press. To hush its voice or to hamper its freedom would be all but a crime, to all men and to all time.

Again, the medical journal furnishes an instrument for the swift distribution of knowledge, which is essential to the progress not merely of our beloved profession but also of the physical welfare of the world. Before the day of medical publications, discoveries reached the individual practitioner through a very long and slow channel. He rarely received help that was not given to him by his medical faculty. But the modern medical publication gives wings to truth. In a few short weeks a valuable idea or discovery of a gifted scholar, or an operator in his laboratory, in his hospital, in his operating room, or by the bedside, is laid at the feet of the practitioner far out on the firing line of our profession, and weary thousands are not compelled to wait in suffering and in the shadow of death until a new generation of physicians shall bring them the remedy which the modern scholar and the operator have perfected.

The medical journal also forms a process of what I have termed, previously, intellectual confluence. By this term I mean a bringing together of all the thoughts, of all the ideas, of all the practices, and all the discoveries of all the physicians into a central reservoir of knowledge from which flows back through the journal to the whole profession that knowledge corrected, validated and certain. We cannot overstress this function of the medical journal. Through it drains into this reservoir the healing waters of medical knowledge from all the world, and sends forth those waters circulating even through small and isolated communities to bless mankind.

Let me speak of another of the vital features of our work. There is always a knowledge which has not yet found its way into books. It is this knowledge of today which will be found in the textbooks of tomorrow. You will not find the last word of pragmatism in the written works of the great Professor James, who coined the term. The world of thinking men has made valuable additions to his great philosophy, and those additions will not be published, perhaps, for a generation. You will not find the last word in law in the written textbooks of the lawyers, but in today's thinking of the men who will write the books of tomorrow. It is so in the world of theology, of medicine, and it is also true in the world of sciences. Like the moisture in the air that has not yet condensed into the healing rain, so is there knowledge in the air, so to speak, that is not condensed into books. The medical journal is precisely the expression of that knowledge, and the reader of its pages will find those things that will fill the textbooks of the next few years. We, therefore, in a sense, furnish to the world the advanced galley sheets of the books that are yet to be published. These first statements, or truths, will become a part of the teaching of our medical colleges in a decade.

We are the prophets of our profession. Pardon an illustration: I stood once in a valley from which the shadow of night had not yet flown. It was morning twilight. Far exalted in the heavens the white brow of Mount Everest had caught the first rays of the rising sun and reflected them through the night in the valley below. So the medical journal catches the first light of a new truth and becomes, in a way, a prophet or a searchlight of the oncoming day.

I need not mention the valuable place which we fill in making permanent the records of all medical facts, discussions and discoveries. When we are dust and our work is done, in the dusty files of our journals mankind will possess for all time the deathless record of the evolution of medical science. What is there written cannot be lost, but will furnish forevermore the material with which research and medical history can work. This function of the medical journal is a very sacred one. Sometimes we may not quite appreciate its greatness, its value or its advantage. All literature is, in a sense, the preservation of the thoughts of all men for the use of every man. Libraries are the conserved minds of the great poets, painters and prophets of the earth. It is through the process of publication that we are able to think the thoughts of Socrates, paint with Rubens, sing with Wagner, build empires with Richelieu and become Americans with Washington. Such is also the function of our journals, to gather and to preserve for all time the thoughts, discoveries and ideas of the master seers and builders in the medical profession.

Contemplating the greatness of our work and the greater dependence of the world on the perpetuity and excellence of our contribution to mankind, I say that we should pay any price to prevent the hampering or the limitation of the freedom of the medical press. Lose every other freedom first. And to this contest for freedom we have a right to bring all the enthusiasm and the sense of consecration that have characterized the men of other ages who have sought to win the largest liberties for the human race. With this purpose we will work, to this ideal we will hold and those lofty principles we will keep in mind, feeling confident that it is a battle in which we must win at last.

In conclusion, suffer a personal word. I have spoken in deep seriousness. Only after long deliberation and consultation could I gain my own consent to give open expression to my fears. I beg you to believe that in so doing I am actuated neither by personal ambition nor the possibility of material reward. With your extreme indulgence I will dare to be personal enough to say that I have reached those years when the work of my hands is established. Changes cannot easily affect that work now. The contest of the future we who are older must leave to younger men. And conscious that I am, in a sense, voicing an official

valedictory, speaking not for myself but for the whole brotherhood of physicians and surgeons, not for my good but for the good of all the generations yet unborn, not for my own little life but for the limitless life of mankind, I shall urge you to preserve in its purity the right of open and free expression of medical opinion, and hand on to the generations yet to be the fine and high traditions of our profession, which have been given to us by the fathers.

DOUBLE FEMORAL HERNIA IN A MAN

LEOPOLD MITCHELL, M.D., SCHOFIELD BARRACKS, H. I.
Captain, Medical Corps, United States Army

W. L., colored soldier, aged 31, eight years since in the United States Army, and at present a cook in the Quartermaster Corps, about eighteen months before coming under observation noted a small swelling in the left groin which gave him some pain. The swelling was not constant, and he noted that by applying pressure it could be made to disappear. As the swelling persisted over a period of months, gradually showing a tendency to become larger, and as the attacks of pain became more marked, he reported at sick call for treatment, the diagnosis of femoral hernia was made, and the soldier was admitted to the hospital for operation. This consisted in high ligation of the sac, suture of the stump to the abdominal wall, suture of the pectineal fascia to Poupart's ligament, and closure of the skin. The patient made an uneventful recovery.

During the first week that he was permitted to be up and about, he reported that he had felt a sudden pain in the abdomen, similar in character to that preceding each appearance of the hernia in the left groin. He immediately investigated the site and, failing to find anything in this region, turned to the right groin, where he noted a swelling very much like the former one on the opposite side, which disappeared on his lying down. These facts were reported to the ward surgeon, and the patient was advised on the recurrence of this tumor to report immediately to the first medical officer available. The next afternoon he reported to the medical officer of the day, who identified the tumor as a femoral hernia. On being told that another operation was necessary, he asked if an opening in the abdominal wall at the site of the umbilicus could not be closed at the same time. He stated that this defect in the abdominal wall had been present since childhood, and that while nothing had ever come through it, it pained him considerably when on long hikes. Examination disclosed a defect in the abdominal wall at the site of the umbilicus sufficiently large to admit the tip of the thumb readily, with no evidence of any protrusion of abdominal contents. At operation no sac was found at the umbilical opening, which was closed by overlapping the rectus sheath, and the femoral hernia was treated as in the first operation. The patient again made an uneventful recovery, and at present is apparently cured.

The comparative rarity of this condition is believed sufficient justification for the report of this case.

The Route of Investigation.—So much yet remains to be done in the field of chemical pathology that we are sometimes inclined to disparage past achievements. But these are not inconsiderable. In edema, concretions, diabetes and other conditions of acidosis, pathological variations in metabolism, in fever, and in numerous other directions substantial gains have been recorded. Uric acid has been found not guilty of most of the offenses charged in the earlier indictments, and part of the responsibility for gout must be borne by as complete a chemical abstraction as tautomerism. But, by all odds, the greatest progress in the field of pathology is the widening recognition that in the future the important advances must be made by the chemical rather than by the histological route.—L. J. Desha, *Science*, September, 1916.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(*Continued from page 549*)

ACUTE CONGESTION OF THE KIDNEYS

Circulatory disturbances frequently occur in the kidneys. With every acute infection, with every high rise of temperature, with every extreme chilling of the body, and with every pathologic chill, the kidneys become more or less acutely congested. Chilling of the body will increase the amount of urine passed by raising the general arterial tension, and, if this amount is large, it will be of low specific gravity. Lowering of the general arterial tension, especially the surface tension, will diminish the amount of urine passed, and usually raises its specific gravity. During the high fever of all acute illnesses the amount of urine is generally diminished; it is usually concentrated and of high specific gravity, and urates and phosphates may be deposited on standing. It may contain albumin and hyaline casts. Lumbar backache is associated with the first stage of most acute infections, doubtless owing to kidney congestion. There are occasional cases of hematuria without special local pathologic condition.

During the increased metabolism of high fever, the kidneys must do an additional amount of work to eliminate the increased waste products, as in a disease accompanied by high fever, much perspiration, or diarrhea, the amount of water excreted by the kidneys is diminished, thus requiring a greater effort in the excretion of salts. Therefore it is a physiologic necessity (unless some circulatory or stomach affection prevents) to give the patient a liberal amount of water during all feverish processes. If water cannot be retained by the stomach, it should be introduced into the colon.

If the skin is perspiring normally, the disturbance of the kidneys is less than when the secretion from the skin is abnormal; if the skin is dry or inflamed, as in scarlet fever, and is excreting little or no water, there is a strain on the kidneys. When the skin is affected by scarlet fever, erysipelas, large burns or other infections that interfere with its secretions, kidney irritation is a concomitant factor. When the skin is covered with perspiration, particularly if it is cold and clammy and if there is depressed circulation or shock, kidney excretion is generally diminished, and no treatment that does not improve the circulation and raise the blood pressure will be efficacious.

When the patient is suffering with edema or a more general dropsy, less water should be imbibed, and the treatment should be that of circulatory failure or nephritis, according to the cause of the condition. If an enormous amount of liquid has been lost from the body, whether by profuse watery diarrhea, persistent vomiting, diabetes mellitus, diabetes insipidus, or severe hemorrhage, water must be introduced into the tissues and circulation in the manner most effective for the preservation of life.

Ordinarily these acute congestions of the kidneys quickly disappear, and the kidneys again function in a normal manner. However, the cause of congestion may be greatly prolonged, as is the case in an eruptive fever with serious inflammation of the skin, such as scarlet fever. The irritation may then be prolonged until acute nephritis results, as the germ or the toxin of the germ of scarlet fever may be an added irritant to the weakened kidneys. In many acute general dis-

eases, such as influenza and tonsillitis, the fever is short-lived and the acute congestion of the kidneys soon disappears. In more chronic infections, such as typhoid fever, the onset of the disease is often accompanied by a high fever; however, the temperature soon falls, and the slight kidney congestion apparently disappears, so that the only treatment necessary is to give the patient plenty of water.

Acute congestion of the kidneys may be caused by many drugs, such as the irritant diuretics, mercury, arsenic, potassium chlorate and antimony. Many coal-tar products of the phenol type, and synthetic drugs of the sulphonal type may cause irritation and even slight congestion of the kidneys. Acute nephritis may result from extreme intoxication produced by some of the more irritant poisons; kidney congestion may follow absorption of bacterial poisons from the intestine.

The symptoms of kidney congestion are backache and a frequent desire to urinate, while the small amount of urine passed is usually concentrated, with or without albumin, cylindroids, hyaline casts, and occasionally granular casts. Of course, many serious conditions of the kidneys do not cause backache, and furthermore, many lumbar pains do not have any relation to kidney disturbances; but it is believed that the lumbar myalgias associated with the beginning of acute infections, associated with signs of kidney disurbances, are due to kidney congestion.

CHRONIC (PASSIVE) CONGESTION OF THE KIDNEY

This disease is caused by interference with the return circulation in the renal veins; in other words, by any cardiac insufficiency which causes a damming back of the blood in the inferior vena cava, or by any pressure in the abdomen that causes interference with the circulation in the renal arteries or veins. This localized interference with the kidney circulation may be due to disturbances of the liver, ascites, tumors, pregnancy, lordosis or a loose kidney. Passive congestion of the kidneys may also be caused by lung conditions which hinder the return circulation through the inferior vena cava, such as pleurisy with effusion, emphysema, advanced tuberculosis, and tumors in the thorax. The urine in passive congestion is ordinarily concentrated, of a rather high specific gravity, tends to deposit urates on cooling, may contain albumin, and often shows blood corpuscles.

Chronic irritation of the kidneys often accompanies diseases of the liver, chronic diarrhea, or continued intestinal disturbance, such as chronic colitis. Chronic irritation long continued and chronic passive congestion will eventually cause kidney degeneration and chronic nephritis.

The only efficacious treatment for passive congestion of the kidneys is the removal of the cause. If this cannot be done, anything which will improve the circulation may, temporarily at least, improve the condition of the kidneys and increase the amount of normal urine.

ACUTE NEPHRITIS (ACUTE BRIGHT'S DISEASE)

Acute inflammation of the kidneys is usually caused by some acute infection, such as scarlet fever, diphtheria, measles, cerebrospinal meningitis, typhoid fever, smallpox, yellow fever, any septic infection, serious burns, erysipelas and acute general eczema, and by various poisons, especially the metallic poisons. Occasionally it begins as an inflammation without apparent previous cause, and in these cases it is supposedly due to cold; but cold alone does not ordinarily have such serious effect. The apparent onset may be sudden, edema, which generally develops in twenty-four hours, being the first symptom; or the inflammation may be preceded by a chill, followed by a slight fever. Nosebleed may occur, followed by hemorrhages into the retina, and if the amount of blood and albumin lost by the kidneys is great, anemia will rapidly follow. Almost similar symptoms indicate an acute exacerbation of chronic inflammation of the kidneys.

Inflammation of the kidneys is attended by the usual local symptoms accompanying any inflammation. There are an increased blood supply, swelling of the kidney, exudate into the tubules, and impaired kidney function; the urine diminishes and becomes concentrated, albumin, casts and blood appear, and frequently suppression is the eventual stage. Associated with these symptoms are headache, vomiting, and often diarrhea. There may be no fever, unless the acute nephritis is a complication of a condition that was already producing fever. There may be an increase or a decrease in the rate of the pulse; the former condition is the usual one. A certain amount of general edema occurs, its seriousness depending on the region of the exudate; edema of the lungs or edema of the brain may develop. The blood pressure generally rises, and with suppression of the urine, uremia with all its symptoms and dangers will probably result.

As stated above, when acute nephritis is a complication of some other infection or general condition, the symptoms will be modified by those of the causative disease; but when acute nephritis is the principal condition, if the patient is to recover, the kidneys begin to functionate, and a small amount of smoky, muddy urine, loaded with casts — hyaline, blood, epithelial and granular — is passed. Little by little the bulk of urine increases, the blood vanishes, the casts and albumin are diminished, edema disappears, and the patient slowly becomes convalescent. The excretion of chlorids, which have at first been almost absent from the urine, gradually increases as the edema lessens. The urine of acute nephritis is generally of a high specific gravity; however, the total amount may show a greatly diminished excretion of solids, while the blood retains nonprotein nitrogen.

If the nephritis is a complication of one of the exanthems, the skin may show the eruption of that particular disease; if the nephritis is not caused by an eruptive disease, it will probably be accompanied by urticaria, itching of the skin, and perhaps by a severe eczema. Forerunners of approaching uremia are eyeblurs, possibly retinal changes, severe headache, momentary losses of consciousness, muscle twitching and cramps, and eventually convulsions and coma.

When numerous cerebral symptoms announce the beginning of this disease the prognosis is very unfavorable and the patient may die within a few days; while in mild cases the inflammation may last several weeks. Whether the kidneys will again become entirely normal cannot be determined for several months, as small amounts of albumin and casts may persist in the urine for weeks and months, and yet the kidneys will finally return to a healthy condition.

The first intimation of an acute nephritis may be a general edema, with few other symptoms. Backache is not necessarily an accompanying symptom even in acute nephritis. This affection may also be superimposed on a chronic nephritis, due to some infection or to some carelessness in diet, or to exposure to cold

(To be continued)

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SATURDAY, FEBRUARY 24, 1917

OCCUPATIONAL DISEASES IN CHEMICAL TRADES

Almost every industrial environment furnishes certain dangers to health. These occupational hazards, usually caused by such conditions as darkness, dampness, bad ventilation, exposure to extremes of heat and cold, long hours, fatigue, or monotony of employment, are more or less common to many industries. There is an evident awakening of the public conscience in respect to the importance of the hitherto largely neglected problems which are presented by modern industrial hygiene. An international congress dealing with the subject of industrial diseases was held in Brussels in 1910 and was attended by more than 600 delegates from various quarters of the globe. Societies and commissions are being organized to undertake the investigation of the questions at stake. Governmental agencies have been stirred up to the desirability of securing more knowledge in respect to the effects of industrial life on the health of a large part of our population and of devising more adequate methods of remedying known defects.

Certain factors have served, of late, to emphasize more effectively than ever before the paramount duty of the nation toward its factory workers. The widespread introduction of workingmen's compensation laws has made it desirable and sometimes necessary to determine the distinction between disease from occupation and injury from accident. Some maladies are clearly traceable as resulting from occupational causes; but in many cases a fair decision as to the responsibility for bodily harm has been made only with difficulty, owing to the prevailing lack of acceptable information of a scientific or statistical character. The projected plans for health insurance on a large scale furnish an added reason for devoting attention to the problems of occupational hazard.

The chemical industries, in particular, are in need of consideration with respect to their occupational diseases. They involve certain specific hazards of a peculiarly serious nature; and the enormous growth of chemical manufacturing in the United States since the beginning of the European war has only added to the need for activity in this field of industrial hygiene, as pointed out in the symposium on occupational diseases in chemical trades before the American Chemical Society a few months ago.[1] The specific hazards in the chemical industry have been summarized by Dr. Schereschewsky of the U. S. Public Health Service as consisting of effects on the body by irritating or poisonous dusts, fumes and gases. Not long ago, eighty-two substances were included in a list of industrial poisons,[2] and the actual number of menacing compounds is unquestionably decidedly larger.

Among the poisonous fumes and gases, some are primarily of an irritating character; but many of these are far more dangerous than was believed a few years ago. After stopping the inhalation of such gases, there may come a prompt relief from the sense of suffocation and an apparent recovery; in a few hours, however, symptoms of severe and fatal illness ensue. In addition to the more purely irritating gases which attack, above all, the mucous membranes of the respiratory tract, and the effects of which have incidentally been illustrated over and over in the present war, there are the so-called toxic vapors, formed by mercury, lead and certain arsenical compounds. Carbon monoxid, hydrocyanic acid gas, hydrogen sulphid, and the volatile coal tar derivatives also have prominence in the group of fumes and gases. It has been stated that anilin probably causes more industrial poisoning than any other chemical compound with the exception of lead. Many of the coal tar derivatives acquire an added danger from the fact that they may be absorbed not only by inhalation but also through the unbroken skin.

The manufacture of explosives has brought an unexpected share of dangers, aside from accidents such as explosions or burns. Dr. Alice Hamilton[3] of the U. S. Department of Labor has already encountered more than thirty poisonous substances which may play a part in the chemical hazards of the munitions industry. Besides the fumes of nitrogen oxids, of chlorin gas and of sulphur dioxid, there are benzene and toluene and their many derivatives, the nitrobenzenes and nitrotoluenes, phenol and sodium phenylate, the nitrophenols, ammonium picrate, anilin, diphenylamin, dimethylanilin and tetranitromethylanilin. More familiar substances also enter into this manufacture: sulphuric ether, ethyl alcohol, methyl alcohol, ethyl nitrite and amyl acetate. In the making of detonators we find mercury, mercuric nitrate and fulminate of mercury. The new poison, tetrachlorethane, used in the varnishing of aeroplanes, has already been referred to in The Journal.[4] This substance, which had given no trouble at all in 1913, produced, in 1914, twenty-

1. Symposium on Occupational Diseases in Chemical Trades, Jour. Indust. and Engin. Chem., 1916, **8**, 1054.

2. Sommerfeld, T., and Fischer, R.: Bull. 100, Dept. of Commerce and Labor, Bureau of Labor, May, 1912.

3. Hamilton, Alice: Dangers Other Than Accidents in the Manufacture of Explosives, Jour. Indust. and Engin. Chem., 1916, **8**, 1064.

4. Poisoning by Tetrachlorethane, Miscellany, The Journal A. M. A., Feb. 27, 1915, p. 766. Tetrachlorethane, Current Comment, Oct. 30, 1915, p. 1561.

three cases of poisoning in the British factories with four deaths.

This hasty review may suffice to indicate the seriousness of the menace to the health of our chemical workmen. The causes of possible distress are so diverse in character, mode of action and entrance into the organism that no simple or single rule of preventive hygiene will suffice to cover the cases. Manufacturing interests have begun to realize that removal of unnecessary risks to life and health tends to increase efficiency and economy of production. But occupational hazards must be combated for humanitarian as well as purely selfish reasons. This does not mean that American chemical manufacturers are indifferent or entirely inactive in this matter. Their initiative, which is largely local and personal, must be supplemented.

"THE FREEDOM OF THE MEDICAL PRESS"

Elsewhere in this issue we publish an address delivered some time ago by Dr. Edward C. Register, editor of the *Charlotte Medical Journal*. Some of our readers may wonder why such an article was accepted for THE JOURNAL. It was accepted and is being published because it plausibly presents a bad cause, a cause whose principles THE JOURNAL has criticized in the past and continues to criticize. The article was a presidential address before, and enthusiastically received by, an organization practically kept up by the privately owned medical journals. It presumably represents the views of the majority of the members of that organization. It was accepted with the distinct understanding that it would be discussed editorially in the same issue in which it appeared. Nothing said is to be taken as a personal criticism of its author. Our comments are concerned with Dr. Register only as he happens to be the editor and publisher of the *Charlotte Medical Journal*, a publication which THE JOURNAL has criticized more than once.

"The Freedom of the Medical Press" is ostensibly a defense of the privately owned medical journal and a warning against the supposititious dangers of autocracy or bureaucracy in the medical profession due to organization. Actually, it may be regarded as a plea for nostrum-controlled, in contradistinction to physician-controlled, medical journalism. It "views with alarm" what its author considers a menace to the freedom of the medical press, viz., the growth of official medical journalism. With every desire to avoid *argumentum ad hominem*, it is essential to a correct perspective that attention be called to certain facts. We believe that it is impossible for the editor and publisher of such a journal as the *Charlotte Medical Journal* to view the subject of medical journalism from the broad standpoint of the best interests of the medical profession and the science of medicine, because, as an examination of the advertising pages of the *Charlotte Medical Journal* will show, that publication has for years been supported more largely by the nostrum interests than by the medical profession. "Sal Hepatica," "Angier's Emulsion," "Campho-Phenique," "Pluto," "Pond's Extract," "Sanmetto," "Hayden's Viburnum Compound," "Tongaline," "Cactina Pillets," — these and many, many other products of a similar nature, which have nothing to commend them either from a standpoint of scientific medicine or from the simpler problem of honesty to one's patients, are advertised in the *Charlotte Medical Journal*. It may be inferred that on the broad question of conducting a medical journal, Dr. Register's views can but be warped by the sponsorship he has assumed in accepting advertisements of such products for his publication.

"The Freedom of the Medical Press" voices at the outset the fear that the American Medical Association has become and is, in effect, a "Trust." This self-conjured bogy has long been used by those interests that have opposed organized medicine and whose activities are notoriously inimical to the public health. It is not usual, though, to find intelligent physicians seriously putting forward a charge that is obviously ridiculous and fundamentally false.

> "Even now, our great central association [the American Medical Association] and our great medical association journal [THE JOURNAL] dictate the policies of every state medical journal and possibly two thirds of the policies of every state medical society."

This statement will seem humorous to those who are familiar with most of the official organs of the state societies. In the nature of the case, however, the average physician sees but few of such journals; probably not more than one, that of his own society. The facts are that of all responsible medical journals the state journals have been and are the most severely critical of the Association and THE JOURNAL.

> ". . . I will declare it as my belief that the freedom of the medical press is greatly hampered when an editor must depend for his election, or his reelection, on a majority vote of the medical association. . . ."

Certainly a far cry from the charge of bureaucracy and autocratic power! In one breath the organization journal is said to endanger the freedom of the medical press because the power is too centralized; in the next breath the freedom of the medical press is threatened when the editor's position depends upon the will of the majority!

> "Again, an officially owned journal has a life that is not dependent on the value of its product. It is officially supported and can exist independent of popular approval or disapproval. . . . This is precisely why it is possible to charge 3 or 4 dollars for a journal worth about 80 cents.

If there is one fact connected with medical journalism that has been demonstrated beyond cavil it is that the journals of the various organizations can not and do not exist independent of the approval or disapproval of those organizations. So far as organization journals are concerned, we know of no case, and none is specified, in which the profession is paying "three or

four dollars for a journal worth about eighty cents." But supposing, for the sake of argument, that there were such cases, THE JOURNAL would contend that it would be better for the public, for the honor of our profession and for the science of medicine, to say nothing of the intellectual honesty of physicians, to pay four dollars for a medical journal worth only eighty cents, but free from the taint of nostrum domination and influence, than to get for eighty cents a journal costing the publisher four dollars, the other three dollars and twenty cents necessary to its maintenance having been paid by the nostrum interests.

"The independent medical journal must obtain a market by force of merit, only."

Yes, by force of merit of a kind — merit as defined by nostrum advertisers. The great majority of so-called independent medical journals today are sold to the profession at a cost far below that of actual production. Obviously, the advertisers and not the subscribers are the controlling element in the production of such journals. It is not strange, then, that in such cases the editor jumps to the crack of the advertiser's whip. To call such medical journals "independent" is to play tricks with the English language. The only "force of merit" that such journals need to "obtain a market" is the questionable merit of suave subserviency to those that support it — the advertisers!

"The editor [of the "independent" journal] can go about his task unafraid of all things save his own inefficiency, and can be true to his own ideals without a continually haunting fear of incurring the displeasure of some powerful clique and losing his position, through the failure to do the bidding of aught save the truth."

The "unafraidness" of most of the editors of so-called independent medical journals is really a contempt for the wishes and opinions of the medical profession and a deadly dread of incurring the displeasure of the advertiser. How many so-called independent medical journals will discuss, without fear or favor, problems that may involve products which they advertise? They may be counted on the fingers of one hand! Not long ago the "unafraid" editor of one "independent" medical journal published a tabulated list of nostrums which the government had declared false and fraudulent, overlooking the fact that in the same issue of his journal he was carrying a half-page advertisement of one of the nostrums listed. He demonstrated his "unafraidness" by publishing in the next issue of his journal an apology — not to the medical profession, but to the advertiser of the nostrum in question! "Whose bread I eat, his song I sing!"

"Let us turn now to consider those elements of the privately owned journals which seem to offer the best guarantee for freedom and efficiency in the medical press. In the first place, its financial and professional success depend wholly on its ability to meet the need of the profession. Its excellence and its real scientific value to the medical world are its only assets. It has no artificial subscription list. No physician is allowed to purchase it, and its management is forced to give an adequate return for its subscription price and to gain subscribers through its ability to serve. To put the matter squarely, it must win its life through service, and service not only to the whole profession but also to mankind."

So the "only assets" of the so-called independent medical journal are its "excellence and its real scientific value to the medical world"? This sounds well and falls trippingly from the tongue. When, however, one attempts to appraise the "scientific value" of such publications as the *Medical Standard* — mouthpiece of the proprietary interests — and the "excellence" of the *Medical Brief*, one realizes that such a panegyric is as sounding brass and a tinkling cymbal.

Further, we are asked to believe that the "independent" medical journal has "no artificial subscription list" and it is "forced to give an adequate return for its subscription price and to gain subscribers through its ability to serve." Yet, we have in our files letters written on the stationery of the *Charlotte Medical Journal*, signed by its editor, that were sent to physicians in different parts of the country, reading in part as follows:

> "I appreciate very much your style of writing and, if you will pardon me, I believe I will make you this proposition: If you will send me four typewritten editorials of about five hundred words each, to be used unsigned, I will send you the *Charlotte Medical Journal* for four years."

It will be remembered that THE JOURNAL of October 11, 1913, published some correspondence showing another method of "subscription-boosting" on the part of this same "independent" journal. In this case the letter, written to the physician, read in part:

> "If you will send me an article for the journal I will be glad to publish same and will place your name on my complimentary mailing list."

Not that these methods are peculiar to the *Charlotte Medical Journal*. By no means; they are common among "privately owned journals." In view of these facts it is impossible to take seriously the claim that the independent medical journal has "no artificial subscription list." Incidentally, what is the scientific value of a journal that offers to accept for publication articles before these are written and in obvious ignorance of their scientific value?

"The privately owned medical journal is without the power to oppress."

Literally, yes; substantially, no. The worst tyranny is that which, under a fair-seeming exterior, corrupts and demoralizes. The typical so-called independent medical journal may not oppress in the literal sense of the word — it debauches. In the history of modern medicine no one thing, not even the low-grade, privately owned medical college, has done so much to debase the science of medicine, to subordinate therapeutics to proprietary interests and insidiously to lower the ethical and scientific standards of the profession, as the so-called independent medical journal.

"Let me say that the nation-wide movement for pure advertising that has become such a distinct characteristic of present-day journalism began in, and was fought most energetically by privately owned, weekly and monthly medical periodicals. I cannot find that a single political, official organ raised its voice in favor of the war against quack advertising and impure foods until the fight had, practically, been won by the independent journals. This fact alone should close the mouth of those who contend that a free, independent journal of any kind is incapable of purifying its advertising columns."

One can only stand aghast at the frame of mind that permits the advancement of such a perversion of facts as argument. All that can be done is categorically to deny. If the history of American medical journalism proves anything, it demonstrates that the fight against the nostrum evil within the profession, that is, against misleading and fraudulent advertising in medical journals, was originated and carried forward wholly by the organized medical profession and by that part of the medical press that has been owned by the profession. There may have been isolated instances of privately owned medical journals making a pretense of exposing fraud in the proprietary medicine world with the motive of dragooning proprietary medicine manufacturers into advertising in such journals as the price of silence. It is but fair to say that the bulk of independent medical journals has not descended to this cowardly form of journalistic blackmail. Most of them have frankly and openly ignored the subject and have simply accepted such advertising largess as might come their way. It is true that some privately owned journals vociferate against quacks and "patent medicines"; neither of these are sources of advertising income! Against the more insidious nostrums that are offered to physicians under the guise of "proprietaries," no protest ever appears except in such medical journals as are owned and controlled by the medical profession.

Dr. Register hits the nail on the head when he says "I am well aware that this debate really centers itself in the question of censorship of advertisements." It does. And the journals that censor their advertisements with an eye single to the best interests of scientific medicine and the safety of the public are those whose continued existence does not depend on the financial support derived from nostrum advertising. As was suggested at the outset, the address on "The Freedom of the Medical Press" is a plea, not for freedom, but for license. Slowly but surely the medical profession is awakening to the fact that it has been, and still is, shamefully exploited by the proprietary medicine interests. Physicians are beginning to realize that the last stronghold of the nostrum interests is the advertising pages of the nostrum-controlled medical journal. Even this defense is crumbling. Medical men are learning that they cannot eat their cake and have it; they cannot expect medical journals that are supported by the nostrum interests to reflect professional ideals. The advertising standards of the typical privately owned medical journal are lower than the advertising standards of the better class lay magazines and of the more progressive newspapers. A publication is no cleaner than its dirtiest page.

It must be understood that THE JOURNAL is not opposed to independent medical journalism per se. It has in the past given, and will in the future give, specific credit to privately owned medical journals free from the domination of the nostrum interests. No greater inspiration for American medicine can be imagined than the establishment of fearless, high-class, privately owned medical journals with breadth of vision and a willingness to fight for principles. A weekly journal of this type is especially to be desired; none would welcome its advent more heartily than THE JOURNAL.

THE VENEREAL DISEASE PROBLEM—IV

Western Australia's Effort to Control the Venereal Diseases

The government of Western Australia by an amendment to its health act which went into effect, Dec. 8, 1915, established a public system for the diagnosis and treatment of the venereal diseases which is similar in outline to that established in England.[1] It is a measure based on the principle of controlling the venereal diseases by attending to their treatment until after they have passed the contagious stage. But it goes much farther in this direction than any other act thus far put into force. It does not simply offer facilities for treatment. It operates on the assumption that, for the good of the community, the person with venereal disease must submit to treatment until he is free from contagion, and it proposes to see to it that he does this.

On developing a venereal disease, a person, within three days, must go to a qualified practitioner for treatment. If he fails to seek treatment immediately he will be fined £20 or imprisoned. The physician must report to the health officials the age and the sex of the patient and a diagnosis of his condition, but not the name or address. The patient is to return for treatment at least once a month; penalty for failure, £20 or imprisonment. If he remains away from treatment for six weeks the physician, under heavy penalty, must notify the health authorities, giving this time the patient's name and address, and the health authorities must bring the patient into court and compel him to have treatment. The patient may change his physician, but on doing this he must disclose the name of his previous physician, who must be notified by the second physician that the patient is now under treatment by the latter. Treatment must be continued until the patient can obtain a satisfactory certificate of cure; penalty for failure, £50 or imprisonment. The health boards have authority to apprehend any person sus-

1. The Venereal Disease Problem—I, editorial, THE JOURNAL A. M. A., Feb. 3, 1917, p. 375; II, Recommendations of the Royal Commission on Venereal Diseases, Feb. 10, 1917, p. 463; III, The English Venereal Disease Act, Feb. 17, 1917, p. 550.

pected of having a venereal disease which is not being treated, and to compel him to submit to examination by qualified physicians and to obtain a certificate of health, or to submit to treatment until such certificate can be obtained.

The measure takes ample precaution to prevent the treatment of venereal diseases by any person other than a qualified physician. It stops absolutely the advertising, the circulation or the sale of medicines intended for the venereal diseases, or of literature bearing in any way on their treatment. An important provision of the act looks to the protection of the secret of the patients by making private all legal procedures which have to do with the enforcement of the provisions of the act. Newspapers are prohibited under heavy penalties from publishing any reference to such legal proceedings. Every provision of the act is guarded by heavy penalties. It is evidently intended that it shall be enforced, and that infringement of it in any particular shall be an offense which nobody will commit lightly.

So far as we know, this Australian act is the most drastic which has been put into force against the venereal diseases. While drastic, it is as logical, as practical and as just an enactment as can be established against the venereal diseases, under the present state of public opinion. It makes every provision possible to protect the patient's secret. It does not take the step, urged in much less radical programs, of giving even anonymous notification in the case of venereal diseases. It requires the return of neither the patient's name nor his address. The whole proposition is that for the good of the community the venereal patient shall be treated by a person qualified to treat him until he is free from danger to others. He can choose his own physician, but the physician must see to it that treatment is kept up, and the physician will be held responsible for attending to this. As long as the patient continues treatment he will keep out of the hands of the board of health and the legal authorities. If he does not do this, he falls afoul of the law; he is reported to the health authorities, and they are empowered to see to it that he lives up to his public responsibility of not remaining a danger to the community.

Western Australia, before anybody else, has taken the two essential steps toward the solution of the venereal problem. First, it has recognized the importance of universal, prompt treatment of venereal diseases as the most efficient measure toward their control. Secondly, it has had the wisdom and—what is unique—the courage to make laws compelling venereal patients to have treatment. If as much intelligence and courage are used in enforcing the act as were used in its enactment, there can be no doubt that an attack in large part successful will be made on the venereal diseases in that province. Australia and New Zealand seem to resemble some of our Western states in their radicalism, which is a would-be offensive name for the intelligence and willingness to act logically on social problems. This law probably represents the highest degree of intelligence that has yet been applied by a state to the venereal problem. It is too much to hope now for such a law in this country, but probably before long the Western Australia law will provide a pattern for enactments elsewhere—perhaps in some of our states.

It may be repeated that the Western Australian act has the great virtue of compelling patients with venereal diseases to submit to treatment until they are no longer a menace to others. At the same time it is a law which has not the objections of notification. It protects the patient's secret, if he does his part and submits to treatment. Even if he does not do this, it protects his secret as far as possible by making all legal proceedings under the act private. But it wastes no great amount of sympathy on the miscreant who is indifferent to his duties in getting himself cured.

RECENT OBSERVATIONS ON TYPHUS FEVER

Naturally the occurrence of typhus fever on a large scale in some of the countries engaged in war has aroused much interest in the cause and prevention of this disease. Most physicians are familiar with the measures used for preventing typhus infection by destruction of the body louse. At this time attention is directed to observations bearing directly on the primary cause of typhus fever. Some time ago Plotz described a bacillus, *B. typhi-exanthematici*, which he cultivated from the blood of a patient with the mild form of typhus — Brill's disease — occurring in New York, and also from the blood of immigrants with typical epidemic typhus. Now the bacteriologic study of the blood has been extended to the disease as it occurs in the Balkans and Russia, as well as in Mexico, blood cultures on typhus patients in these countries in a large percentage of cases revealing the presence of *B. typhi-exanthematici*. In Mexico, Olitsky, Denzer and Husk[1] obtained the bacillus in most of the cases studied, the bacilli being most numerous in the early stages of the attack and in the most severe forms of the disease. They found the blood of the typhus patients whom they studied to be infectious for guinea-pigs, and recovered the bacillus from the spleen of guinea-pigs infected with typhus blood or by means of lice from typhus patients. They also assert that they have obtained the bacillus from lice from typhus patients; but when so isolated the bacillus is gram-negative, becoming, however, gram-positive on subculture. Baehr and Plotz,[2] who made the investigations in the Balkans and Russia, obtained cultures of the bacillus from the blood in nineteen of forty patients in Serbia and Bulgaria, while in Russia and Galicia, where the conditions were more favorable, the cultures were positive in nineteen of twenty-four cases. They

1. Olitsky, Denzer and Husk: Jour. Infect. Dis., 1917, **19**, 811.
2. Baehr and Plotz: Jour. Infect. Dis., 1917, **19**, 201.

were able to show that the bacillus is present in the blood during the entire course of the fever from the first day on, and that the more severe the disease the more marked the bacteremia. In two cases in which cultures were made during the initial chill, the blood contained enormous numbers of bacilli; in one case ninety-one colonies developed to each cubic centimeter of blood inoculated.

The results obtained so far from blood cultures show, then, that the bacillus described by Plotz appears to be present in the blood in the febrile period of typhus fever as it occurs in the United States (Brill's disease and epidemic typhus), Mexico, Serbia, Bulgaria, Austria and Russia, and certainly the intimate association of this bacillus with typhus fever would seem to be established clearly enough. It is a matter of regret, however, that, owing to the prevailing conditions in the countries in which the disease now is epidemic, it has not been possible to carry on still more extended investigations on this important bacillus, more particularly in the line of prophylactic inoculations, which, so far as the results at hand appear to indicate, may be of great value. The agglutinins for *B. typhi-exanthematici* first appear at about the time of the crisis and describe a typical immunity curve.

An exceedingly interesting development in the typhus work is the demonstration of Prowazek, Rocha-Lima,[3] and Toepfer and Schüssler[4] that lice which have bitten typhus patients in the febrile stages of the attack contain large numbers of peculiar minute bodies, especially in the epithelial cells of the digestive tract. In Giemsa preparations these bodies are reddish, short, elliptic and coccus-like, sometimes with polar staining. It may be recalled that Ricketts and Wilder also described rods with polar bodies in lice infected with typhus fever,[5] and Rocha-Lima has given these bodies the designation *Rickettsia prowazeki*. So far these bodies have been found only in lice which have been picked up from typhus fever patients or from their clothes or from other sources, and placed on typhus fever patients and allowed to bite them. Early in the attack there are only a few infected lice found on the typhus patient under natural conditions, but as the attack progresses the number increases and in the early stages of convalescence most of the lice found are said to contain the bodies. Experiments appear to show practically the same conditions; that is to say, early in the disease the lice must be left in contact with the patient longer before the bodies develop to any extent; but toward the ninth day or so, only a short time, even a single bite suffices. When convalescence has set in it is impossible to secure the development of the bodies by letting lice bite the patients. As stated, the bodies are absent in lice obtained from healthy persons and from persons suffering with diseases other than typhus fever; hence the presence of such bodies in a number of lice obtained in suspected cases of typhus fever is said to be sufficient to make the diagnosis of typhus.[6] Toepfer and Schüssler state that abortive cases of typhus fever give rise to a rich development of *Rickettsia* in lice. Lice containing them are infectious for guinea-pigs; that is to say, when guinea-pigs are injected with suspensions of crushed bodies of such lice, they develop the febrile reaction which is regarded as characteristic of typhus infection in guinea-pigs. Rocha-Lima was unable to obtain growths of the bodies in the mediums employed by Plotz to grow *B. typhi-exanthematici*, and he also found only a superficial similarity between the Plotz bacillus and *Rickettsia*, the bacillus being larger and gram-positive, whereas the bodies are gram-negative; but Baehr and Plotz appear to regard the bodies as identical with the bacillus, and Olitsky, Denzer and Husk report the successful isolation of the Plotz bacillus from typhus lice.

Nicolle is an investigator of typhus fever who holds that we are still ignorant of the actual cause of the disease. In his experimental work he employs what he calls typhus virus, by which is meant virulent emulsions of the spleen and other organs of typhus-infected guinea-pigs. His most recent work deals with the production of an antityphus serum.[7] The serum from typhus convalescents having been found to possess specific preventive properties, he assumed that the typhus virus would serve as antigen. Accordingly, asses were injected intravenously with emulsions of leukocytes of infected guinea-pigs, and then many times with emulsions of spleen. The serum was found to acquire antityphus properties, being preventive as well as curative in guinea-pigs, and the Tunisian investigators even claim that the serum has given favorable results in human typhus, the death rate in a series of serum-treated cases being much reduced as compared with the ordinary death rate. By means of suitable immunity tests, Nicolle shows that Algerian, Moroccan and Balkan typhus viruses appear to be identical.[8] These apparently significant results are not of necessity inconsistent with the view that the bacillus described by Plotz is the cause of typhus, as this bacillus has been found in the blood and organs of guinea-pigs infected with typhus and consequently may have been the actual agent of immunization. If that is the case, immunization with the bacillus itself should give the same or even better results. At all events it is clear enough that still further work will be required to settle all the questions as to the causation of typhus, even though great progress has been made.

3. Rocha-Lima: Deutsch. med. Wchnschr., 1916, **42**, 1353; München. med. Wchnschr., 1916, **63**, 1381.
4. Toepfer and Schüssler: Deutsch. med. Wchnschr., 1916, **42**, 1157.
5. Ricketts, H. T., and Wilder, R. M.: The Etiology of the Typhus Fever (Tabardillo) of Mexico City, THE JOURNAL A. M. A., April 23, 1910, p. 1373.
6. Otto: Med. Klin., 1916, **12**, 1143.
7. Nicolle and Blaizot: Ann. de l'Inst. Pasteur, 1916, **30**, 446.
8. Nicolle: Arch. Pasteur Inst. of Tunis, 1916, **9**, 215.

Current Comment

SARGOL CONCERN FINED $30,000

On February 17, 1917, Wylie B. Jones and Herbert E. Woodward, the two men convicted of fraud in the exploitation of Sargol, were fined $30,000, Jones having to pay $20,000 and Woodward the balance. Both fines were paid and the defendants waived their right to appeal and agreed to have the Sargol Company go out of business. Thirty thousand dollars is not a large amount to be assessed against men who have defrauded the public of millions. The fact, however, that these individuals but narrowly escaped going to the federal penitentiary and were undoubtedly put to no small additional expense in attempting to defend their nefarious business will have a wholesomely deterrent effect on other mail-order medical fakers.

NUXATED IRON FOR THAT TIRED FEELING

Is there to be a Renaissance of the testimonial epoch? Ten or fifteen years ago the testimonial industry was at its height, especially as it is applied to medicinal products. Every "patent medicine," however quackish, was able to publish testimonials from persons whose position, if not their intelligence, should have made them hesitate to give such endorsements. Those were the days when "Peruna" published panegyrics from such notables as Admiral Schley, Rear-Admiral Hichborn, Julia Marlowe, etc., when the praises of "Duffy's Malt Whiskey" were declaimed by Sarah Bernhardt, the virtues of "Fahrney's Blood Vitalizer" sung by Schumann-Heink, and the attributes of "Electric Bitters" immortalized by Champ Clark. Those were the happy days of the "patent medicine" vendor. Neither should it be forgotten that the writing of testimonials for the so-called "ethical proprietaries" had become an ingrown habit with the medical profession. Then the light was turned on. Lay magazines exposed the fraud and viciousness of the "patent medicine" business, while THE JOURNAL demonstrated by numerous examples that a large proportion of the proprietary medicines sold for physicians' prescriptions were little, if any, better, than the "patent medicines." Gradually, testimonial writing became unpopular, at least among the intelligent portion of the population. Physicians virtually abandoned the practice, while among laymen it gradually became confined to the ignorant and credulous. Recently there have been indications that the habit is being reestablished. Hence, the question with which this comment begins. Our readers will remember that Mr. Jess Willard credits "Nuxated Iron"[1] for his victory over Mr. Jack Johnson, while Mr. Ty Cobb declares, in very black type, that this panacea is responsible for his "winning" qualities. Now comes the Hon. William E. Mason, former United States senator, now congressman-elect from Illinois, advising the people of the United States that "Nuxated Iron Should Be Made Known to Every Nervous, Run-down, Anemic Man, Woman and Child." This is the same Mr. Mason whose name appeared as "General Counsel" of the "International Institute for the Treatment of Tuberculosis" operated by the "rupture-dope-dyspepsia-consumption-curer," O. E. Miller. When THE JOURNAL called Mr. Mason's attention to the questionable company in which his name appeared he pleaded ignorance of the nature of the "Institute" and withdrew from it. Doubtless when his attention is called to the "Nuxated Iron" quackery, he will ask those who are responsible for the quarter-page advertisement now appearing in the newspapers to return his photograph and testimonial. Congressman Mason testifies that he had suffered greatly from "that horrible tired feeling." After reading the testimonial, those holding old-fashioned ideas of the dignity and intelligence that should characterize the House of Representatives will appreciate just what a "tired feeling" means.

1. THE JOURNAL A. M. A., Oct. 21, 1916, p. 1244; also, editorial comments, "Sporting Note," Oct. 28, 1916, p. 1309, and "Science Note," Nov. 4, 1916, p. 1376.

A CLEVER RUSE IN DIETARY REFORM

Among the difficulties sometimes encountered in the administration of any health propaganda is the persistent demand of custom and habit for recognition in any plan of procedure adopted. There are some persons who are afflicted with a stubborn respect for usage which apparently prevents them from accepting anything new — not to say voluntarily adopting an innovation — in their life routine without a severe mental struggle. The time of meals, the mode of dress, the hours of work and innumerable other incidents of daily experience are looked on as permanently fixed. Any proposed violation of the traditional regimen is viewed almost as a sacrilege. Many of the wholesome and common foods of life have their "personal enemies based on dietetic prejudices which are largely imaginary." These must always be reckoned with by every reformer who hopes to win success for his plans. There is usually more than one way of routing an enemy. Sometimes the favorable mode of attack is a direct one; in other instances a circuitous approach may furnish an easier path to victory. An illustration of the application of the latter plan of campaign is the carefully studied luncheon service of a large American corporation. In its Cleveland factory a charge of 6 cents is made for a cup of coffee, because the corporation believes that coffee is not a healthy and nourishing beverage for its employees, at least for the young women; but certified, sweet milk, attractively served, is sold for 2 cents, or less than the wholesale price, because the employers believe that milk is preferable to coffee as a beverage. The same care is exercised in the preparation and service of the rest of the menu. Coaxing the appetite by the device of a bargain in foods is not an entirely novel scheme. Sometimes it is purposely planned by the dietitian; usually, however, it is the device of the purveyor. In the case just cited it may be urged by some that such insidious schemes are objectionable because milk is not well tolerated by every one. This contention is rapidly being abandoned. "Any one can take milk" is the sane com-

ment of a recent writer.[1] "If a person tells me, 'I cannot take milk,' I always say, 'You can if you will take it in a certain way.' It is a question usually of flavoring it aright or of taking it like soup, with a spoon, with a bite of some carbohydrate substance, cracker or bread, between the sips. I do not think everybody must take milk, but I think everybody can."

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

FLORIDA

Personal.—Dr. Charles E. Terry, formerly health officer of Jacksonville, has gone to New York to assume charge of the health department of the *Delineator*.——Dr. Henry Hanson has been elected health officer of Jacksonville.

IDAHO

State Board Election.—The state board of health has elected Dr. William R. Hamilton, Weiser, president, and Dr. Edward T. Biwer, Boise, secretary.——Dr. Ellis Kackley, Soda Springs, has been appointed a member of the state board of health, succeeding Dr. Oscar B. Steely, Pocatello, resigned.

ILLINOIS

Society Joins Red Cross.—The Peoria Medical Society at its meeting, February 6, unanimously voted to join the Peoria Chapter of the American Red Cross.

Personal.—The house of Dr. James H. Oughton, Dwight, was destroyed by fire, February 11.——Dr. Karl F. Snyder has been elected president of the Freeport Club.

Paralysis Conference.—A conference of physicians under the auspices of the state board of health was held at St. John's Hospital, Springfield, February 20 to 23, to study the treatment of children suffering from infantile paralysis. A clinic was also held. This is the first of a series of clinics to be held in twenty-eight towns and cities in the state.

Epidemic Diseases.—On account of the prevalence of scarlet fever in Winchester, a proclamation has been issued suspending all public gatherings.——The public schools of Alexis have been closed on account of scarlet fever.——Smallpox has appeared in Belvidere, where eight cases have been reported. The moving picture shows and churches of the city have been closed.——February 3, Dr. Charles W. Miller, Peoria, discovered ten cases of smallpox in one family.

Chicago

Mrs. Ryerson Offers Summer Home.—The board of directors of the Children's Memorial Hospital voted to accept, February 12, the offer of Mrs. Arthur Ryerson of the use of her home during the summer for convalescent children.

Institute of Medicine.—At a meeting of the Institute of Medicine of Chicago, February 22, Dr. Horatio B. Williams of Columbia University, New York, delivered an illustrated address on "Electrocardiography and its Applications to Medicine."

New Base Hospital Unit.—A number of physicians headed by Drs. J. Rawson Pennington and Charles H. Parkes are organizing a base hospital unit with headquarters at the Sheridan Park Hospital. Dr. Clarence L. Wheaton has been selected as adjutant.

Army Medical Officers.—The Illinois Division of the Medical Reserve Corps has issued an appeal to recent graduates of medical schools who have had a hospital internship to consider entering the medical service of the army or navy. There are at present, or soon will be, 500 vacancies in the medical corps of the army and navy.

Personal.—Dr. Arthur F. Schuettler was held up and robbed of a watch, diamond pin, money and a case of surgical instruments near his home, February 17.——Dr. Harry C. Rolnick has returned after several months' duty in military hospitals on the Rhine and in Western Prussia and Bohemia.——Dr. and Mrs. E. Wyllys Andrews left for Florida, February 8.

Hospitals Buy Land.—Michael Reese Hospital has purchased, from the estate of William M. McClintock, property on Lake Park Avenue, 50 by 92 feet, adjoining the hospital, for $18,000.——The Beulah Home and Maternity Hospital has purchased property on North Clark Street, near Webster, 40 by 50 feet, for $14,000.

Ambulance Transfers to American Service.—Sixty-five students of the University of Chicago who have enrolled for service with the American Ambulance in Paris have transferred their service to the American Ambulance Corps which is being organized. The corps will be connected with one of the four base hospitals in Chicago, and will be under the charge of Dr. H. Wernicke Gentles.

Prevention of Infantile Paralysis.—The health officials, philanthropic workers, physicians and nurses of Chicago and its suburbs have organized an association for the prevention of infantile paralysis. Health Commissioner Robertson is president of the association; Mrs. Harlan Ward Cooley, vice chairman, and Dr. Willis O. Nance, secretary.

Deaths from Contagious Diseases.—According to the *Bulletin of the Chicago School of Sanitary Instruction*, Feb. 10, 1917, in 1916 there were only forty-nine cases of smallpox in the city, with no deaths. There were 8,732 cases of measles and 130 deaths; 8,681 cases of scarlet fever with 160 deaths, and 6,980 cases of diphtheria and 785 deaths. In January, 1917, there were 1,734 cases of scarlet fever with 68 deaths; 948 cases of diphtheria and 135 deaths, and 1,222 cases of measles with 22 deaths. In 1916 the death rate from measles almost equalled that of scarlet fever.

Tuberculosis Study.—A systematic course of lectures intended for those interested in tuberculosis problems will be given on Thursday evenings of March at the City Club of Chicago from 6:30 to 7:30 p. m., under the auspices of the Chicago Tuberculosis Institute. The class will be known as the Theodore B. Sachs Tuberculosis Study Class, and the following subjects will be considered:

March 1: "How the Visiting Nurse can Aid in the Discovery of Tuberculosis"; "Home Instruction by the Nurse," Edna M. Foley.
March 8: "Cook County Welfare Department and the Tuberculosis Problem," Mrs. Gertrude Howe Britton.
March 15: "What may Lead the Layman to Suspect Tuberculosis"; "The Return Sanatorium Patient"; "How to Deal with the Tuberculosis Carrier," Dr. Charles Segal.
March 22: "Crippled Children and Tuberculosis," Dr. Edwin W. Ryerson.
March 29: "The Results of the Tuberculosis Survey," Dr. Clarence L. Wheaton. "Incidental Problems of the Survey," Dr. John Ritter.

LOUISIANA

Clinic Dedicated.—The Corinne Casanas Free Clinic connected with the Presbyterian Hospital, New Orleans, was formally dedicated, January 16.

Medical Society Gives Concert.—A society event of New Orleans, January 27, was the concert given at the Athenaeum by the Orleans Parish Medical Society for the benefit of its building fund.

Mayo in New Orleans.—Dr. Charles H. Mayo, Rochester, Minn., delivered a lecture, January 20, in the theater of the Charity Hospital on "Cancerous Growths and Operation on Cancer of the Intestines."

Physician Found Guilty.—The Louisiana State Board of Medical Examiners reports that Dr. Emory W. Reeves, who had previously been refused a license to practice medicine, has been found guilty in the Federal Court of violating the Harrison Narcotic Law.

State Health Board Election.—The Louisiana State Board of Health has reelected Dr. Oscar Dowling, Shreveport, president, and has elected Dr. J. M. Mosely, Arcadia, vice president, and Dr. Merrick W. Swords, New Orleans, secretary. Dr. John H. Ellis, Kentwood, has been appointed registrar of vital statistics. Dr. Henry B. White, Gueydan, has been retained as medical inspector of the board, and Miss Agnes Morris has been appointed instructor in school hygiene.

Personal.—Dr. Frederick H. Parham, New Orleans, is reported to be ill with appendicitis in Touro Infirmary.——Dr. William M. Perkins, retired secretary of the state board of health, has been presented with a gold watch by his friends and associates on the board.——Dr. Charles A. Schilling, Abbeville, has been elected superintendent of the State Baptist Orphanage, Lake Charles.——Dr. William H. Robin has been reelected secretary of the New Orleans Board of Health,

1. Cabot, R. C.: A Layman's Handbook of Medicine, 1916, p. 115.

Dr. Paul Gilpin, inspector of communicable diseases, and Dr. Abraham L. Metz, bacteriologist.

MARYLAND

Workers' Health Under State Care.—The state bureau of labor and statistics has taken up the investigation and inspection of factories and factory workers, with a view to checking occupational diseases.

Rest Room for Women at Hopkins.—A women students' rest room, dedicated to the late Mary Elizabeth Garrett, is being constructed just off the corridor of the main hospital building at the Johns Hopkins Hospital. The women medical students, the women alumnae and the women resident physicians planned and financed the project. The building will contain thirty-seven lockers and two dressing alcoves.

Alumni Provide for Annual Deficit.—The general alumni association and the alumni council of Johns Hopkins University have begun a campaign among the 4,000 graduates to raise half a million dollars, the income of which is to be used for the next three years to apply to the annual deficit of the university. The trustees and friends of the university have subscribed $70,000 a year for the three years, and the alumni have promised to raise $20,000, also a definite sum for laboratories, additional facilities for research work, dormitories and a gymnasium.

MASSACHUSETTS

New Medical Organization.—The Physicians Club of Worcester has been organized with Dr. Clarence F. Desmond as president and Dr. Max Baff as secretary.

New Hospital for Adams.—Mr. William B. Plunkett, a prominent cotton manufacturer of Adams, will erect and equip a hospital which he will present to the town of Adams.

New Officers Elected.—At the meeting of the Boston Society for Medical Improvement, January 29, Dr. Abner Post, Boston, was elected president, and Dr. George Clymer, Boston, secretary-treasurer of the society.

Japanese Physicians Visit Boston.—Drs. W. Ocacka, Y. Honda and Okada, members of the faculty of the Imperial University, Tokyo, Japan, were guests at Forsyth Day at the Dental Infirmary, Boston, January 20.

State Health Officers Meet.—At the annual meeting of the boards of health, held in Boston, January 25, under the presidency of Dr. Frank A. Woods, Holyoke, papers were read by Dr. Donald B. Armstrong, New York, on "The Framingham Health and Tuberculosis Demonstration," and by Dr. Thomas F. Harrington, on "Industrial Health." The following officers were elected: president, Dr. Francis X. Mahoney, Boston; vice presidents, Drs. John S. Hitchcock, Northampton, and William G. Kirseelbaum, New Bedford; secretary, Dr. Francis H. Stack, Boston, and treasurer, Dr. Francis G. Curtis, Newton.

Fellowship for Public Health Men.—Harvard Medical School, in cooperation with the Boston Dispensary, offers a fellowship to graduates in medicine who desire to pursue a course of study leading to the certificate of public health in the school for health officers, or to the degree of Doctor of Public Health in the department of preventive medicine and hygiene. Fellows are required to give half their time to the treatment and supervision of the sick in their homes, in a district of the city of Boston, and half their time to study or research at the Harvard Medical School. Appointments may be made for one or two years. The stipend is $750 per year. Applications stating previous experience, references, etc., should be made to Dr. Milton J. Rosenau, professor of preventive medicine and hygiene, Harvard Medical School, Boston.

Personal.—Dr. Morton Snow, Springfield, formerly of Chicago, was elected a medical director of the Massachusetts Mutual Life Insurance Company at the sixty-fifth annual meeting, February 6.——Dr. William T. Porter, Boston, has returned after several months on the western war front.——Dr. Henry S. Rowen has been elected a trustee of the Boston City Hospital, succeeding Dr. Francis J. Keany, deceased.——Dr. Howard A. Streeter, Marblehead, has been appointed district health officer for the Berkshire District, succeeding Dr. Stanley H. Osborn, who has been appointed epidemiologist.——Dr. William Howe Merrill, Lawrence, has been appointed a member of the board of trustees of the Danvers Hospital.——Dr. Herbert B. Howard, Boston, has been appointed a trustee of the Gardner State Colony.——Dr. William L. Richardson, Boston, has been elected a trustee of the Perkins Institution and School for the Blind, Boston.

MISSOURI

Tuberculosis.—The Jasper County Tuberculosis Sanatorium will be ready for occupancy, June 1.

Personal.—Dr. Hardy D. Havard, St. Louis, sailed for Europe for service with the British troops on the western war front.

Dinner to Lester Hall.—An anniversary dinner is to be given, March 10, at the Hotel Baltimore, Kansas City, under the official sanction of the Jackson County Medical Society and the Kansas City Medical Association, with the cooperation of the officials of the Missouri State Medical Association, in honor of Dr. C. Lester Hall, on the occasion of his completion of fifty years in the practice of medicine.

St. Louis

St. Louis Unit Defers Trip Abroad.—The St. Louis Unit of the American Physicians' Expedition Committee has indefinitely postponed its proposed trip to Germany, as the members considered that their first duty is to the United States.

Personal.—Dr. Hartwell N. Lyon, who has been seriously ill at the Barnes Hospital, is now reported to be out of danger.——Dr. Scott Heuer has returned after a term of service with the American Ambulance in Paris.——Dr. Fred T. Murphy delivered a lecture at the Washington University Medical School, February 6, on "The Methods of Treating Wounds," illustrated with stereopticon slides showing the character of wounds made on European battlefields.

MONTANA

Personal.—Dr. Carl F. Easton has resigned as city chemist of Butte, and has been succeeded by Mr. F. M. Harris.

Hospital Addition.—The addition to the Deaconess Hospital, Great Falls, which has been built at a cost of about $100,000, will be ready for occupancy next month.

NEW YORK

To Transfer Quarantine.—A concurrent resolution was adopted by the legislature, February 15, recommending the transfer of the New York Quarantine Station from the state to the federal government. The resolution calls on the New York members of Congress to support a measure appropriating $1,395,275 by July 1 to reimburse the state and take over the plant now utilized by the health officer of the port.

Personal.—Dr. Charles C. Sweet, Ossining, has been appointed temporarily to succeed Dr. Thomas J. Barry as physician and surgeon of Sing Sing. The attorney general has ruled that Dr. Barry's Tennessee license to practice medicine does not entitle him to practice medicine in the prison of this state.——Dr. Edward G. Whipple, medical director of the Rochester Public Health Association, has resigned.——Dr. Waldon E. Munz has been made assistant city bacteriologist of Rochester, succeeding Dr. William L. Culpepper, resigned to accept a position at the Rockefeller Institute.

New York City

Long Island College Hospital to Be Coeducational.—The Faculty of the Long Island College Hospital has voted to make the college coeducational.

New Hospital Open for Babies.—The new home of the St. Christopher Hospital for Babies, Brooklyn, has been opened for inspection. The building provides eighty-five beds, and has the full equipment of a modern hospital.

Investigate Illness Among Negroes.—On February 17, over 400 nurses of the department of health made a house to house visit in the colored districts of Manhattan for the purpose of gaining information which will aid in improving the health of colored people.

Denounce Health Insurance.—At a meeting of the Central Federated Union, February 16, James P. Holland, president of the State Federation of Labor, and Francis X. Sullivan, counsel of the organization, denounced the Mills Bill for health insurance.

Work of Babies' Welfare Association.—The annual report of the Babies' Welfare Association shows that more than 59,000 babies less than 2 years old were reached during the year 1916 by the milk stations of the association. The department of health served 48,302 of these, the diet kitchen 6,432, and the Straus milk stations 3,986. There are seventy-eight milk stations under the direction of the association.

Personal.—Major J. Richard Kevin, M. C., N. G., N. Y., assigned to the Twenty-Third Infantry, and Lieut. Edward H. Marsh, M. C., N. G., N. Y., assigned to the Fourteenth Infantry, have resigned.——A news item in THE JOURNAL, February 10, p. 470, is incorrect. Dr. Samuel M. Strong has been appointed president of the staff of the Flushing Hospital, and Dr. Charles B. Story is surgeon in chief of the institution.

Lectures on the Prevention of Disease.—The course of free lectures given under the auspices of the public health education committee of the Medical Society of the County of New York began, February 5, and will be given weekly until March 29. The subject on February 6 was "The Relation Between Diseased Teeth and General Body Infection." The subject on February 15 was "Dietetics." Other subjects announced are as follows:

SURVEY OF INFANTILE PARALYSIS

Wednesday, February 21, 8:15 p. m.:
"The Disease and Its Early Recognition," Genevieve Wilson, M.D.
"Treatment and After-Care," Henry W. Frauenthal, M.D.
"What the Recent Epidemic Has Taught Us," Haven Emerson, M.D.

NEW PRACTICAL METHODS IN CHILD HYGIENE

Thursday, March 1, 3:30 p. m.:
"How We Prevent Diphtheria," Anna I. von Sholly, M.D.
"Results Obtained in Experimental Hygiene," Miner C. Hill, M.D.
"Parental Care," Josephine Hemenway Kenyon, M.D.

NORTH CAROLINA

New District Officers.—At the annual meeting of the Third District Medical Society, at Wilmington, Dr. Tilton V. Moore, Acme, was elected president; Dr. Gabe H. Croom, Wilmington, vice president, and Dr. James B. Sidbury, Wilmington, secretary-treasurer (reelected).

Bennett Bill a Law.—The Bennett Bill has passed both houses of the legislature and is now a law. It constitutes the offering for sale, sale, or advertising of any remedy purporting to cure cancer, paralysis, consumption, diabetes, Bright's disease, "or any other disease for which no cure has been found," or "any mechanical device for the treatment of diseases when the North Carolina State Board of Health shall declare that such device is without value in the treatment of diseases," a misdemeanor, punishable by a fine not exceeding $100 for each offense. It is made the duty of registered pharmacists to report such sales to the State Board of Pharmacy on penalty of forfeiture of their pharmacy license.

OHIO

Barberton Asks Help.—The Barberton Board of Health has asked aid from the state board of health in fighting an epidemic of smallpox.

New Officers.—The Dayton Academy of Medicine has elected the following officers: president, Dr. Harry H. Hatcher; vice president, Dr. Howard V. Dutrow; secretary, Dr. Edgar L. Braunlin, and treasurer, Dr. John F. Fouts.

Proposed Substitute for State Board of Health.—A bill has been introduced into the legislature abolishing the present state board of health and establishing a commissioner of health with an advisory board of four members, following the lines of the New York law establishing a commissioner of health.

Training Schools for Pupil Nurses.—A bill enabling hospitals with five beds continuously occupied during the year to maintain a school for the training of pupil nurses has been passed by the house of representatives. The law now requires an average of fifteen patients in the hospital as a minimum. The State Nurses' Association and the larger hospitals are opposed to the measure on the ground that it is lowering the standard of nursing.

Personal.—Dr. Lillian G. Towslee has been appointed chairman of the advisory board of the Cleveland City Hospital Nurses Training School.——Dr. Joseph M. Kells, Columbus, recently underwent splenectomy at St. Joseph's Hospital, Rochester, Minn.——Dr. Harley H. Emerson, Columbus, has been appointed assistant medical examiner for the State Industrial Commission.——Dr. Estell H. Rorick, Wauseon, has resigned as a member of the state board of administration, and has been succeeded by Dr. Arthur F. Shepherd, Columbus.

Cincinnati

New Officers.—At the meeting of the Medical Research Society, Dr. Oscar Berghausen was elected president; Dr. Walter H. Stix, vice president, and Dr. R. Isaacs, secretary-treasurer.

Personal.—Dr. Arthur Pfeiffer sustained severe bruises in a collision between automobiles in Newport, February 11.——Dr. Byron Clyde Terwillegar has returned after serving for more than a year in the British service.

Base Hospital Officers.—The medical division of the proposed base hospital unit for Cincinnati has selected Dr. Joseph Ransohoff as director; Dr. Frank E. Fee, assistant in surgery; Dr. Roger S. Morris, assistant in medicine, and Dr. Paul G. Woolley, assistant in laboratory work.

PENNSYLVANIA

Personal.—Dr. B. Swayne Putts, Erie, suffered severe electrical burns, February 8.——Dr. John M. Gelwix, Chambersburg, has been appointed surgeon to the Cumberland Valley Railroad.——Dr. Edward W. Ryan, Scranton, who has been for two years and a half in charge of the relief work in Serbia, under the American Red Cross, has returned home for an extended visit.——Dr. William C. Reese, Wilkes-Barre, has been appointed chief surgeon of the Associated Coal Companies of Northeastern Pennsylvania.

Philadelphia

Officers Elected.—Philadelphia Obstetrical Society: president, Dr. Frank C. Hammond; vice president, Dr. F. Hurst Maier; secretary, Dr. Edward A. Schumann, and treasurer, Dr. William E. Parke.

Personal.—Dr. William M. Welch was the guest of honor at the tenth annual banquet of the Aesculapian Club, February 6.——Dr. Alfred Gordon delivered an address before the Medico-Legal Society of New York, February 21, on "The Relation of Legislative Acts to the Problem of Drug Addiction."——Lieut.-Col. Conrad E. Koerper, and Lieut. Royal H. McCutcheon, M. C., N. G., Pa., have resigned.

Blockley Pavilion Dedicated.—The new glass enclosed pavilion for tuberculous patients at the Philadelphia General Hospital was dedicated, February 15. Dr. Wilmer Krusen, director of health and charities, was in charge of the ceremonies. The dedicatory address was delivered by Judge Patterson. Other speakers include the Rev. Francis X. Wastl, Catholic chaplain of the hospital, Dr. Albert P. Francine, Mrs. Thomas Robins, secretary of the Women's Advisory Board, and E. J. Cattell, city statistician.

University Alumni Smoker.—The annual smoker of the Philadelphia Alumni Association of the Medical School of the University of Pennsylvania was held, February 17. Dr. B. Franklin Stahl, who has been secretary of the association for twenty-five years, was elected president, the occasion being marked by the presentation to him of a grandfather's clock bearing the university seal. Other officers elected were: honorary vice president, Provost Smith; vice presidents, Drs. William S. Wray, Everett P. Barnard and Seth A. Brumm; secretary, Stephen E. Tracy; treasurer, Morris B. Miller, and recording secretary, Floyd E. Keene.

SOUTH CAROLINA

Health Surveys.—The York County Medical Association has adopted resolutions asking the legislature to appropriate $2,000 for a health survey of York County.——The Orangeburg County Medical Society adopted similar resolutions and asked a like appropriation.

District Society Meetings.—At the fourteenth semiannual meeting of the Second District Medical Association, held in Barnwell, January 30, a resolution was adopted endorsing a state-wide law for the enforcement of prohibition.——The First District Medical Association has elected the following officers: president, Dr. J. Sumner Rhame, Charleston; vice president, Dr. John B. Johnston, St. George (reelected), and secretary-treasurer, Dr. Ernest C. Baynard, Charleston.

WISCONSIN

Pasteurized Milk Demanded.—An ordinance sanctioned by the health board of Kenosha, January 31, provides for the pasteurization of all milk used in the city.

County Sanatoriums.—The County Board of LaCrosse County has voted to bond the county for $50,000 to establish a forty-bed county tuberculosis sanatorium near Onalaska. The county board of Waukesha County has appropriated $16,000 for a site for a county tuberculosis sanatorium.

Valley Physicians Elect Officers.—At the annual meeting of the Fox River Valley Medical Society, held at Green Bay, February 7, the following officers were elected: president,

Dr. Stephen E. Gavin, Fond du Lac; vice presidents, Drs. James P. Lenfesty, DePere, and Manly J. Sandborn, Appleton, and secretary-treasurer, Dr. Richard H. Sweetman, Green Bay. Green Bay was selected as the next meeting place.

Personal.—Dr. John W. Coon, formerly head of the Municipal Tuberculosis Sanatorium, Chicago, has been appointed medical director of the River Pines Sanatorium, Stevens Point.——Dr. Julius E. Block, Dundee, has sailed for England, where he will be on duty with the British troops in France.——Dr. Curtis A. Evans has been named as director of the new Red Cross Base Hospital, Milwaukee, and Dr. Joseph P. McMahon, adjutant.

CANADA

Senior Medical Student Killed in Battle.—Capt. James Knowles Bertram, Montreal, aged 25, a senior student at McGill University, who enlisted in November, 1914, as adjutant of the Twentieth Canadian Battalion, and was advanced to officer in charge of the intelligence department, First Brigade, headquarters staff, was killed in action on the Somme, Sept. 22, 1916.

Hospital News.—More ample accommodation will shortly be available for convalescent soldiers in Canada, according to the director of the military hospitals commission, Mr. S. A. Armstrong. Buildings are being prepared in many cities and upward of 3,000 more beds will soon be ready.——The old agricultural college building, Winnipeg, Man., has been taken over by the government, and will be used as a hospital and convalescent home for returned soldiers. Six hundred beds will be available by April 15. Reeducation work will also be undertaken.

Personal.—Capt. J. Bryce McMurrich, M.D., Toronto, who has been home for a short leave of absence, has returned to England.——Lieut.-Col. Thomas B. Richardson, Toronto, late commanding office, Toronto Military Base Hospital, has been appointed A. D. M. S., Sudbury, Ont.——Lieut.-Col. James C. Connell, dean of Queen's Medical College, Kingston, Ont., has been in Ottawa at the request of the militia department to give advice with regard to changing the eye test for Canadian soldiers.——Gen. Carleton Jones has been appointed Canadian Medical Commissioner, and is returning to Canada for two months to coordinate the services to meet the requirements of the front.——Dr. William Dixon, after a year's service with the R. A. M. C., has returned to Hamilton, Ont.

GENERAL

State Medical Boards Elect.—At the annual meeting of the Federation of State Medical Boards of the United States, held in Chicago, February 6, Dr. David A. Strickler, Denver, was elected president; Dr. Walter L. Bierring, Des Moines, Iowa, secretary-treasurer, and Dr. Conrad H. Suttner, Walla Walla, Wash., a member of the executive committee.

Medical College Officials Elect.—At the twenty-seventh annual meeting of the Association of American Medical Colleges, held in Chicago, February 6, Dr. William S. Carter, Galveston, was elected president; Dr. Edward H. Bradford, Boston, vice president, and Dr. Fred C. Zapffe, Chicago, reelected secretary-treasurer. Chicago was selected as the next place of meeting.

Opportunity for Young Medical Men in Public Health Service.—According to a statement just issued by Surgeon-General Rupert Blue, young medical men between the ages of 23 and 32 will be given an opportunity each month to demonstrate their fitness for admission to the grade of assistant surgeon in the U. S. Public Health Service. There are several vacancies in this corps. Application for permission to take the examination should be made to the Surgeon-General, U. S. Public Health Service, Washington, D. C.

Bequests and Donations.—The following bequests and donations have recently been announced:

To Dr. Judson Daland, Philadelphia, for medical research, $5,000, by the will of Elizabeth Swift.

Methodist Hospital, Indianapolis, a donation of $1,000, by William N. Bowers, Culver, in memory of Mrs. Bowers.

St. John's Hospital, Brooklyn, $10,000, and St. Mary's Hospital, $5,000, by the will of Mrs. Anna Walsh.

Toronto General Hospital and National Sanatorium Association, Toronto, for the endowment of a cot in each of these institutions, $4,000, by the will of Mrs. Elizabeth Cockburn, Toronto.

Luzerne County (Pa.) Medical Society, a gift of $10,000 for an addition to the library of the society and the purchase of books, by John Wells Hollenback.

Personal.—Dr. Joseph F. Borgoff, Butte, Mont., has been elected vice president of the West Coast Medical Association.——Dr. Bowman C. Crowell, professor of pathology and bacteriology in the University of the Philippines, Manila, has been appointed director of the Graduate School of Tropical Medicine and Public Health in that institution.——Among the Americans who accompanied Ambassador Gerard from Berlin are reported the following physicians: Drs. Albert H. Roler, Evanston, Ill.; Henry Harms, Christian B. Luginbuhl, Chicago; Charles L. Furbush, Philadelphia; Walter A. Haldy, Cleveland, and John R. McDill, Milwaukee.——Dr. Earl M. Rice, Portland, Ore., was surgeon of the British-India steamer *Mantola*, which was torpedoed southwest of the Fastnet, Ireland, September 8. Dr. Rice has arrived safely in London.——Dr. Milo A. Jewett, formerly of Danvers, Mass., who was recently United States consul at Kehl, Germany, has been recalled from his post.

Mental Hygiene Committee Meeting.—At the ninth annual meeting of the National Committee for Mental Hygiene, held February 7, in New York, it was announced that during the past year over $30,000 had been contributed for general expenses by four donors, one of whom had also pledged $100,000 toward an endowment fund. The Rockefeller Foundation had contributed $34,000 for special purposes such as surveys of conditions among the insane and feebleminded. These surveys have been completed in California, Colorado, Connecticut, Georgia, Louisiana, Pennsylvania, South Carolina, Tennessee, Texas and Wisconsin, and are now in progress in Chicago and New York. Sixteen state societies for mental hygiene have been organized. The initial issue of the quarterly organ, the *Journal of Mental Hygiene*, appeared in January. The following officers were elected: president, Dr. Lewellys F. Barker, Baltimore; vice persidents, Prof. Charles W. Eliot, Boston, and Dr. William H. Welch, Baltimore; treasurer, Mr. Otto T. Bannard; medical director, Dr. Thomas W. Salmon, New York; associate medical director, Dr. Frankwood E. Williams, Boston, and secretary, Mr. Clifford W. Beers.

FOREIGN

New Hospital in Panama.—The new Panama Private Hospital of fifty beds is now open.

National Red Cross Established.—The president of the Republic of Panama has issued a decree establishing the National Red Cross of Panama.

New Course at University.—The University of the Philippines, Manila, has instituted a course which leads in one year to the degree of Doctor of Tropical Medicine and in two years to that of Doctor of Public Health.

Medical Practice in Grenada.—There is a reported scarcity of physicians in the island of Grenada, British West Indies, due to the European War. As a result, the ordinance regulating the practice of medicine and dentistry has been amended, whereby graduates of medical schools in the United States recognized by the Grenada Medical Board and who are legally entitled to practice medicine in the United States are eligible for registration.

Deaths in the Profession Abroad.—**J. M. Alvarez,** professor of hygiene at the University of Cordoba, Argentina, senator of the realm and governor of the Province of Cordoba, aged 57.——**K. Pelman,** professor of psychiatry at the University of Bonn and until recently chief of the psychiatric clinic, aged 78.——**H. Schulthess** of Zurich, whose works on heart diseases, the sphygmometer and photography of the pulse have carried his name far and wide, aged 54. His work on heart disease in the Swiss army was based on over a million separate examinations, on 21,000 men with pathologic hearts. His latest work, embodying the results of intensive research for many years, was reviewed in THE JOURNAL, Aug. 5, 1916, p. 473.

Death of Oswaldo Cruz.—The cable brings word of the death of the physician to whom Brazil is chiefly indebted for its rapid emancipation from yellow fever as soon as the American Commission had blazed the way. In less than three years, as chief of the public health service, he stamped out yellow fever in Rio de Janeiro, and in 1911 accomplished the same task in Para, the central seat of the rubber industry on the Amazon. For some years he has been at the head of the University Institute of Pathology and Bacteriology, named in his honor, formerly the Institut de Manguinhos. Cruz has personified in South America the new era of preventive medicine, and honors have been heaped on him at home and abroad. His modest summary of his work at Rio was published in the *Brazil Medico*, 1909, **23**, 482.

LONDON LETTER

LONDON, Jan. 29, 1917.

Food Regulation: A New Loaf

It has been explained in a previous letter that in order to increase the supply of food the production of the ordinary white loaf is prohibited and the millers are compelled to extract a higher percentage of flour from wheat than formerly. By a further regulation the new loaf is modified. All flour milled from wheat must be straight-run, and the miller is required to obtain a certain percentage called the prescribed percentage. The percentage varies with the different qualities of wheat used, and the average percentage is 76. The miller, however, is not allowed to stop short at the prescribed percentage, but is required to obtain five points beyond this. These further five points may be obtained either by milling the wheat to a higher percentage or by adding flour ground from rice, barley, maize and oats, or any mixture of those grains or in both these ways. In addition, the miller has the option of adding a further five points obtained in the same way. The effect of this option is practically that a sack of 280 pounds of flour may contain, in addition to any compulsory admixture, about 17 pounds of flour ground from rice, barley, maize or oats.

Tuberculosis and the Panel System

The working of the panel system is attended with a certain amount of friction between physicians and the authorities. An example is the great question of the treatment of tuberculosis. It is calculated that about 150,000 persons are annually disabled by the disease in England and 50,000 die from it. The London Insurance Committee has issued a report explaining why the campaign against the disease does not make more progress. The reasons are: (1) the unwillingness of the insured presons to report themselves to their physicians; (2) the inability of the physician in many cases to make a diagnosis, and (3) the omission on the physician's part to utilize the services of the tuberculosis officer as a consultant. It is alleged that the old methods of club practice have been preserved and subsidized. In fact, there is now a premium on inefficiency, because the more people a physician undertakes to attend, that is, the quicker he undertakes the work, the more money he stands to make out of it. He is also able to sell the care of his patient to any other physician who wants to buy. In this bargain special qualifications go for nothing. It also seems that some panel physicians resent the idea of consulting with state specialists.

Influenza in London

Although the mortality from influenza in London remains far above the average, a considerable decline is recorded in the registrar-general's latest return. Last week the deaths numbered 77, compared with 98, 86 and 81, respectively, in the three preceding weeks. The death-rate from all causes also fell, being 19.6 per thousand of the population, against 23.7 in the last week of December.

PARIS LETTER

PARIS, Jan. 25, 1917.

The War

ECONOMY IN SANITARY SERVICE

M. Justin Godart, undersecretary of state of the military health service, is making every effort to economize in the sanitary service. He has asked the directors of the health service to utilize their personnel when not otherwise engaged: (1) for the care of civilians; (2) for hygienic propaganda (conferences on the evil effects of alcohol, tuberculosis, etc.), and (3) for conservation of the race (care of infants and mothers, tuberculosis dispensaries, etc.). In their spare time the members of the service should also be occupied with: (1) sanitation and improvement of public hospitals and infirmaries; (2) assisting the mayors of these districts in municipal hygienic work, in the cultivation of abandoned farms, etc.; (3) agricultural work under instructions of the prefects, and (4) furthering in every possible way national or local interests. The undersecretary recommends the formation of squads consisting of the older men and tradesmen, which will make all repairs and do the necessary cleaning. Finally, it is recommended to avoid all waste in making dressings.

WAR AND THE DECREASE IN BIRTHS

M. Honnorat, deputy of the department of the Lower Alps, has ready for publication the demographic statistics of France for 1915. The data at hand are as follows:

Years	Births	Deaths
1913 (77 departments)	604,454	588,809
1914 (77 departments)	594,222	647,549
1915 (76 departments)	382,466	644,301

Therefore, in the departments which can be accounted for, registry shows: in 1913, an excess of 15,645 births; in 1914, an excess of 53,327 deaths, and in 1915, an excess of 261,835 deaths.

The figures for 1915 are incomplete. They do not represent correctly the births and deaths in the invaded departments in the war zone, where almost all the deaths of combatants are registered. However, considering only the seventy-six noninvaded departments, the war lost to France in 1915 one third of its births. It has cost her, for this year only, 200,000 children, equivalent to five army corps.

Aural Complications in Aviators During Flights

Dr. Lacroix read an interesting paper before the Académie de médecine in which he showed that the function of equilibration is not disturbed during normal flights, while audition is always affected. Normal flight in an aeroplane does not provoke vertigo. It causes, among other troubles, constant acoustic reactions owing to the intermittent buzzing in the ear and deafness, caused by the wind and variations in pressure against the tympanum. The healthy ear does not seem to be affected permanently by these conditions, and this emphasizes the importance of aural integrity on the part of the aviator. His certificate of physical aptitude should not be issued by one physician, but by a medical commission consisting of specialists in diseases of the heart, neurology, ophthalmology, etc.

The Legacy of Dr. Tripier

Dr. Raymond Tripier of the Faculté de médecine de Lyon, whose death was recently announced in THE JOURNAL (Dec. 30, 1916, p. 2026), bequeathed to the University of Lyon 200,000 francs for the encouragement of special work in operative medicine and pathologic anatomy. He also bequeathed to the city of Lyons the sum of 200,000 francs, the annual interest of which will permit the acquisition of a work of art every five years.

BERLIN LETTER

BERLIN, Nov. 14, 1916.

War Neuroses

For the past three decades, since the enactment of the German accident insurance law, there has existed a controversy in regard to the acceptance of Oppenheim's conception of the clinical course of a traumatic neurosis. It seemed for a time as though Oppenheim's views had been rejected entirely, but recent experiences, gained as the result of the war, have again brought his views to the fore, and they have been made the subject of much discussion in periodicals and at meetings. The subject was discussed rather extensively at the recent meeting of the German Society of Neurologists, held in Munich the latter part of September. Oppenheim, Nonne and Gaupp opened the discussion. Oppenheim maintained his former attitude that a neurosis following a trauma must be considered as a traumatic neurosis. The trauma, which might have been psychic or mechanical in its action, would in either case produce the same functional disturbances of the central nervous system. A psychic trauma would not necessarily produce only psychic symptoms. The so-called "fright neurosis" and "commotion neurosis" are both traumatic neuroses. A peripheral trauma not having any psychic effect at all may nevertheless produce a typical neurosis. Psychic processes, on the other hand, may cause a fixation of these neuroses. A "free interval" does not interfere with the actuality of a physical trauma. Hyperthermia and hyperthyroidism are encountered in these traumatic neuroses; likewise specific vasomotor-trophic-secretory disturbances, which cannot be referred to hysteria, inactivation or compression. Akinesia amnestica may be due to hysteria. In its typical development, however, it is not a hysterical picture any more than is a reflex neurosis which bears a relationship to an arthrogenic muscle atrophy. The fact that these patients may be healed by strong mental impulses and peripheral irritations (Kaufmann's method, etc.) does not conflict with the possibility of these cases being traumatic neuroses. Dis-

turbances of innervation are seen in organic and functional paralysis. These spasmodic neuroses resemble hysteria, but are not identical. Torticollis is in the same class. Oppenheim admitted that the spread of hysteria among wounded soldiers was underestimated by him. Traumatic neuroses also occur among prisoners, although less frequently. The traumatic neuroses of the neurasthenic and hysterical type are curable. They are influenced favorably by psychotherapy.

NONNE'S VIEWS

Nonne's views are opposed to those of Oppenheim. He does not regard the traumatic neuroses as a separate clinical entity. The syndrome described under the term "traumatic neuroses" is easily accounted for by the well known neuroses; hence the symptoms should not be ascribed to the trauma, that is, the direct effect of the trauma, but rather to the psychic state of the individual himself and his environment at the time the trauma was sustained. These disturbances are really a reaction on the part of the individual to the new conditions created by the trauma. A somatic trauma is not essential to the development of the neurosis, nor need there be any organic changes of any kind which might serve as a basis for the development of such a neurosis. Practically, Oppenheim's views should be discounted, because naturally they would influence, unfavorably, professional and public opinion, to the detriment of the economic interests of the state as well as the recovery of the individual. The war has shown that individuals possessed of a very stable nervous system may develop symptoms of neurasthenia, but the basis for such a neurasthenia is undoubtedly fatigue. This view has been confirmed by actual clinical experience. The various types of monosymptomatic and oligosymptomatic hysteria (Charcot's classification) occur. The borderline between certain forms of hysteria and fright neurosis is not very distinct. In many cases of war neurosis the nature and operation of the trauma play a greater rôle than the personality of the patient. Local contractures, akinesia amnestica, reflex paralysis and myotonoclonia trepidans (pseudospastic paresis with tremor) frequently occur among these patients as an expression of hysteria. The psychogenesis may be traced in many cases, and cannot be excluded.

The clinical course of these cases of hysteria does not differ from that of the ordinary case of hysteria. Mechanical disturbances of the peripheral nerves and a consequent irritation of the cerebral and spinal centers cannot be determined definitely. Cures by suggestive therapeusis are opposed to such a view. Partial functional paralyses of organically paralyzed nerves are to be regarded in part as functional fixations of a mild healed organic paralysis. The alcoholic form of hysteria plays only a minor rôle. The shell explosion neuroses are purely functional. Long continued loss of consciousness does not militate against this conception. Even after the lapse of many months these patients may be cured by suggestion, particularly hypnotic suggestion, and in the hypnotic state the symptoms may be reproduced accurately. Acute and chronic psychic traumas may cause these cases, without any existing organic changes in the central nervous system. The pretraumatic state does play a rôle in the etiology of these cases. It is noteworthy that the same clinical picture is often seen following infectious diseases and other acute internal disturbances.

PROGNOSIS

The prognosis of these war neuroses does not differ from that of the neuroses seen in civil life. The therapy is the same for both conditions, psychotherapy being most effective. Hypnotic suggestion is of great value. Much remains to be done in clearing up the prophylaxis as well as the prevention of recurrences of these neuroses.

GAUPP'S VIEWS

Gaupp, like Nonne, was opposed to Oppenheim. He does not believe in the existence of a special or particular war neurosis or a traumatic neurosis. The German is less susceptible to these conditions than the Slav or Roumanian. There is some difference in susceptibility among the various peoples of Germany. The symptomatology is practically the same everywhere, as is also the etiology, namely, fatigue and exhaustion of the nervous system, physical and psychic disturbances, neurasthenia, general reduction of body resistance, exhaustion of individual organs, heart, vasomotor and gastric neurosis, etc. Infection, alcoholism and nicotinism have an etiologic significance, and the degree of individual resistance, psychic as well as physical, determines the severity of the case. The existence of pathognomonic symptoms, such as headache, dizziness, insomnia, tachycardia, increased reflexes and mental depression, is denied. Acute psychic or physical trauma does not produce neurasthenia in a well man, but a man who is exhausted will easily fall a victim. The similarity in the clinical picture of the fright neuroses is noteworthy, especially when they follow severe acute shock of any kind (mine explosions, shell explosions, shell wounds and bullet scalp wounds), and after subacute psychic disturbances (mustering in, drilling, called to the front, initial experience in the trenches, command to attack, and seeing severely wounded or dead friends or comrades). The effect of a mechanical shock, such as a shell explosion, is often overestimated. The explosion usually is not an unexpected one, and therefore the psychic effect cannot be as great as it often is said to be. A warning of an impending explosion is given by the sound made by the traveling missile, and the soldier frequently can seek timely shelter. A state of fearthought and a resulting loss of consciousness usually precede the occurrence of the explosion. The unconsciousness is often a psychic manifestation rather than a mechanical cerebral commotion. The majority of the clinical pictures are purely psychogenic. There may be a temporary fright neurotic complex which disappears rapidly (tremor, weakness of the legs, difficulty of speech, laughing, weeping and apathy). The difference between a fright neurosis and hysteria is wholly a matter of definition. Akinesia amnestica, reflex paralysis and myotonoclonia trepidans are psychogenic disturbances. In hysteria all grades of paralysis occur. Victims of war neuroses usually are not taken from among the wounded, contrary to Oppenheim's statement. They seldom occur among prisoners even when they have been shocked severely. Prisoners are actuated by one great desire: to remain well so that when they are exchanged they may return home in good health.

The symptoms of acute psychogenic disturbances are manifold, and preexisting disturbances are frequently made worse. The symptoms are not improved by errors in diagnosis and wrong treatment with orthopedic apparatus. The so-called "commotion neurosis" is not a neurosis at all, but an organic cerebral disease. The clinical symptoms of mild cases frequently cannot be distinguished from neurasthenia and hysteria. Imbecility, sclerosis, beginning dementia praecox and similar mental states frequently pave the way for psychogenic disturbances. The question of simulation or malingering cannot be discussed at this time. Perhaps we are not paying enough attention to this phase. The prognosis of all these war neuroses depends largely on the previous personality of the individual. Many forms of therapy are applicable.

THE DISCUSSION

The majority of those participating in the discussion agreed with Nonne and Gaupp without in any way influencing Oppenheim in his beliefs. He is convinced that there is an increase in the number of cases of hysteria among the wounded, and he insists that this clinical entity be considered in the granting of pensions. On the other hand, he does not believe that all war neuroses are of psychogenic origin. The war does more than make a fleeting impression on body and mind. The nervous system is severely affected, and perhaps permanently. He sounded a note of warning, asking every one not to look lightly on these war neuroses, and to guard against making a diagnosis of hysteria or neurasthenia, or even simulation. Furthermore, granting that there are individuals who do simulate, it must be borne in mind that even they may be ill.

Marriages

HANNIBAL CLAUDE FORTUNE, M.D., Rochester, Ill., to Mrs. Claude Beatrix Fortune of Pleasant Hill, Ill., at St. Louis, February 5.

WALTER FREDERICK WESSELS, M.D., Los Angeles, to Miss Theodocia Longenecker of Chicago, Dec. 20, 1916.

HENRY ULRIC WOOLSEY, M.D., Hillsboro, Tex., to Miss Etta Mae Carroll of Penelope, Tex., February 1.

JAMES ALLEN RUTLEDGE, M.D., Woodville, Okla., to Miss Aline Colby of Ada, Okla., January 3.

BENJAMIN W. RALSTON, M.D., Lindsay, Okla., to Miss Sue Koontz of Okemah, Okla., January 1.

DAVID W. JONES, M.D., Baltimore, to Miss J. Williams, at Baltimore, February 4.

Deaths

Henry Dwight Holton, M.D., Brattleboro, Vt.; New York University, New York, 1860; aged 78; a Fellow of the American Medical Association, and third vice president in 1881; one of the most noted sanitarians of New England; died at his home, February 12. He was born in Rockingham, Vt., and after his graduation in medicine entered the army as surgeon of the Twelfth Vermont Infantry, U. S. V. In 1873 he was made professor of materia medica and therapeutics in the University of Vermont and served in this capacity until 1886. From 1873 to 1878 he was medical examiner to the Vermont Asylum for the Insane. In 1896 he was made a member of the Vermont State Board of Health and a year later was elected secretary and executive officer of the board, holding this position until his death. In 1884 he was elected a member of the Vermont senate and in 1888 of the house of representatives. He was president of the Connecticut River Valley Medical Society in 1869, of the Vermont State Medical Society in 1873, of the American Conference on Tuberculosis in 1901 and of the American Public Health Association in 1902. He had been for twenty-five years a member and thirteen years chairman of the Brattleboro school board.

Joseph Ford Thompson, M.D., Washington, D. C.; University of Maryland, Baltimore, 1857; aged 79; a Fellow of the American Medical Association and of the American Surgical Association; professor of anatomy and professor of surgery in Columbia Medical College; professor of surgery and later emeritus professor of surgery in George Washington University; surgeon to the Providence, Emergency, Children's Garfield Memorial, and George Washington University hospitals, Washington, and the Columbia Hospital for Women; acting assistant surgeon, United States Army, during the Civil War; died at George Washington University Hospital, February 1.

Julian Howard Allen, M.D., Spartanburg, S. C.; University of Tennessee, Nashville, 1888; aged 47; a Fellow of the American Medical Association, and president of the Spartanburg County Medical Society in 1906; surgeon to the Charleston and West Carolina Railroad, and Carolina, Clinchfield and Chicago Railway; surgeon to the Spartanburg County Almshouse and Jail; visiting physician to the Spartanburg Hospital; president of the city board of health; died at his home, January 23, from endocarditis following tonsillitis.

Harry Wilbur Stoner, M.D., Baltimore; University of Maryland, Baltimore, 1907; aged 44; formerly a Fellow of the American Medical Association; first assistant bacteriologist for the state board of health; associate professor of bacteriology in his alma mater; in charge of the laboratories of the Maryland General, and Presbyterian Eye, Ear and Throat hospitals; died at his home, February 4, from pneumonia.

Thomas Hunt Stucky, M.D., Louisville, Ky.; Hospital College of Medicine, Louisville, 1880; aged 58; formerly a Fellow of the American Medical Association; president of the Mississippi Valley Medical Association in 1897; formerly president of the Louisville Association Baseball Club and of the Louisville National League Club; died in a sanatorium in Louisville, February 17.

Michel Thomas Lanaux, M.D., New Orleans; Tulane University, New Orleans, 1906; aged 33; a Fellow of the American Medical Association, and formerly vice president and secretary of the Orleans Parish Medical Society; died in the Presbyterian Hospital, New Orleans, January 12, from septicemia, due to an infected wound of the hand.

Harley G. Ristine, M.D., Fort Dodge, Ia.; Rush Medical College, 1869; aged 78; a Fellow of the American Medical Association; local surgeon for the Illinois Central and Minneapolis and St. Louis railroads; a veteran of the Civil War, and for forty years a resident and practitioner of Fort Dodge; died at his home, January 30.

Frank Ellsworth Allard, M.D., Boston; Boston University Medical School, 1892; aged 55; formerly president of the American Association of Medical Examiners; a member of the faculty in his alma mater; medical director of the Boston Mutual Life Insurance Company; died at his home, in Wellesley, February 4.

Willard Hall Rogers, M.D., New York City; Jefferson Medical College, 1876; aged 66; a Fellow of the American Medical Association; a member of the New York Academy of Medicine, and inventor of the water electrode; died at his home, February 9, from arteriosclerosis.

Frank Albert Ford, M.D., Altoona, Pa.; University of Pennsylvania, Philadelphia, 1897; aged 40; a Fellow of the American Medical Association; formerly president of the Blair County and Fifteenth Censorial District medical societies; a specialist on diseases of the eye; died at his home, February 10.

George Willis Robinson, M.D., Shreveport, La.; University of Pennsylvania, Philadelphia, 1895; aged 53; a member of the Louisiana State Medical Association; for three years house surgeon of the Manhattan Eye, Ear, Nose and Throat Hospital, New York City; died at his home, February 4, from pneumonia.

Arthur Elmore Smylie, M.D., Brooklyn, N. Y.; College of Physicians and Surgeons in the City of New York, 1883; aged 54; for thirty-four years a member of the staff and president of the Eastern District Hospital; died in that institution, February 5, after an operation for carcinoma of the stomach.

William S. McPherson, M.D., Thurmont, Md.; University of Maryland, Baltimore, 1848; aged 92; said to have been the oldest living alumnus of the University of Maryland; died at his home, in Auburn, four miles south of Thurmont, January 15, from senile debility.

Wilbur C. Hammond, M.D., Philadelphia; University of Pennsylvania, Philadelphia, 1894; a Fellow of the American Medical Association and Obstetrical Society of Philadelphia; died at his home, February 4, from septicemia due to infection received while operating.

Jasper Glenn Ernest, M.D., Gasport, N. Y.; Niagra University, Buffalo, N. Y., 1894; aged 46; a Fellow of the American Medical Association; coroner of Niagara County in 1912; died in the Buffalo General Hospital, Dec. 5, 1916, from ulcer of the pylorus.

Benjamin Franklin Strong, M.D., Chautauqua, Kan.; Rush Medical College, 1896; aged 55; formerly a member of the Kansas Medical Society; for four years county physician of Elk County, Kan.; died at his home, February 5, from nephritis.

Francis Chaffee, M.D., Towanda, Pa.; College of Physicians and Surgeons, Baltimore, 1880; aged 68; a member of the Medical Society of the State of Pennsylvania; died at the Packer Hospital, Sayre, Pa., about January 28, from gangrene.

Arthur S. Townsend, M.D., Bennettsville, S. C., Medical College of the State of South Carolina, Charleston, 1887; aged 53; a member of the South Carolina Medical Association; died at his home, Nov. 13, 1916, from angina pectoris.

Constantine Henry Martin, M.D., Allentown, Pa.; Bellevue Hospital Medical College, 1866; New York Homeopathic Medical College, 1868; aged 71; a veteran of the Civil War; died at his home, February 5, from cerebral hemorrhage.

Charles Stafford Ames, M.D., Ada, Ohio; Hahnemann Medical College, Chicago, 1884; aged 56; died in the Fort Wayne Hospital, February 1, from brain injuries following the overturning of his automobile, January 6.

William Shepard Seamans, M.D., New York City; College of Physicians and Surgeons in the city of New York, 1881; senior medical examiner of the Equitable Life Assurance Society; died at his home, February 6.

John Calvin Nesbit, M.D., South Burgettstown, Pa.; Columbus, Ohio, Medical College, 1881; aged 67; a Fellow of the American Medical Association; died at his home, February 3, from cerebral hemorrhage.

Charles E. Martin, M.D., Caruthersville, Mo.; St. Louis College of Physicians and Surgeons, 1898; aged 47; a member of the Missouri State Medical Association; died at his home, February 1, from cerebral hemorrhage.

Eugene George Campana, M.D., Butte, Mont.; College of Physicians and Surgeons, Chicago, 1904; aged 32; formerly a member of the Medical Association of Montana; died at his home, February 8, from heart disease.

Manford M. Hixson, M.D., Delphos, Ohio; Medical College of Ohio, Cincinnati, 1876; aged 67; formerly a Fellow of the American Medical Association; died in his office, February 1, from acute dilatation of the heart.

Thomas Nathaniel Jacob, M.D., Dalbys, Va.; Medical College of Virginia, Richmond, 1899; aged 46; formerly a Fellow of the American Medical Association; died at his home, Dec. 5, 1916, from angina pectoris.

Bradford LeBaron Baylies, M.D., Brooklyn, N. Y.; College of Physicians and Surgeons in the City of New York, 1852; aged 87; died at his home, February 9, from bronchopneumonia.

John Milton Elliott, M.D., Peoria, Ill.; Kansas City, Mo., Medical College, 1890; aged 86; a veteran of the Civil War; died in the Deaconess Hospital, Peoria, February 1, from senile debility.

Rosh Leaman, M.D., Philadelphia; Jefferson Medical College, 1882; aged 62; a Fellow of the American Medical Association; died at the home of his brother in Philadelphia, January 25.

Mary Frances Monaghan, M.D., Waltham, Mass.; Tufts College Medical School, Boston, 1912; aged 35; also a graduate in pharmacy; died at her home, February 7, from heart disease.

Thomas J. McCain, M.D., Waldron, Ind.; Medical College of Indiana, Indianapolis, 1880; aged 72; a veteran of the Civil War; died at his home, January 22, from angina pectoris.

Charles Ruxton Ellison, M.D., New York; Bellevue Hospital Medical College, 1873; aged 67; formerly a Fellow of the American Medical Association; died at his home, January 31.

Isaac Cole Miller, M.D., Cincinnati; Miami Medical College, Cincinnati, 1874; aged 64; a member of the Ohio State Medical Society; also an attorney; died at his home, January 28.

William Henry Craig, M.D., West Schuyler, N. Y.; New York University, New York, 1875; aged 69; died in a hospital in Utica, N. Y., January 18, from cerebral hemorrhage.

William H. Faulds, M.D., Kingston, Pa.; University of Pennsylvania, Philadelphia, 1876; aged 71; a Fellow of the American Medical Association; died at his home, February 7.

Thomas W. Bartlett, M.D., Sioux City, Iowa; Chicago Homeopathic Medical College, 1878; aged 63; died, January 26, in Los Angeles, where he had gone in quest of health.

Andrew John Crighton, M.D., East Hartford, Conn.; College of Physicians and Surgeons, Baltimore, 1891; aged 52; died at his home, Nov. 28, 1916, from chronic nephritis.

Alonso W. Vincent, M.D., Valparaiso, Ind.; Bennett Medical College, Chicago, 1872; aged 76; died at the home of his daughter, in Gary, Ind., Nov. 28, 1916, from pneumonia.

Benjamin Rush Ridgely, M.D., Warren, Md.; University of Maryland, Baltimore, 1847; aged 93; died at the home of his son in Baltimore, February 2, from pneumonia.

Charles Robert Stanhope, M.D., Milwaukee; Wisconsin College of Physicians and Surgeons, Milwaukee, 1905; aged 36; died at his home, February 7, from tuberculosis.

Caroline M. Osborn Koenig, M.D., Buffalo, N. Y.; University of Buffalo, N. Y., 1904; died in Hahnemann Hospital, Rochester, N. Y., January 28, from pneumonia.

Robert Stevenson Denney, M.D., Aurora, Ill.; Rush Medical College, 1909; aged 33; a Fellow of the American Medical Association; died at his home, February 12.

Robert Cauch, M.D., Carpinteria, Calif.; Hahnemann Medical College, Chicago, 1877; aged 85; died in St. Francis' Hospital, Santa Barbara, January 24.

John R. DeVore, M.D., Suwanee, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1900; aged 40; died in a hospital in Atlanta, January 24.

John C. Rutter, M.D., Bloomsburg, Pa.; Hahnemann Medical College, Philadelphia, 1855; aged 90; died at his home, January 30, from influenza.

John South, Jr., M.D., Hoquiam, Wash.; University of Minnesota, Minneapolis, 1889; aged 66; also a druggist; died at his home, January 26.

William P. DeLaperriere, M.D., Hoschton, Ga.; Medical College of Georgia, Augusta, 1876; aged 61; died at Miami, Fla., January 29.

Frank Fanning, San Antonio, Texas (license, Seventeenth Judicial District Board, Texas, 1899); aged 62; died at his home, January 13.

Charles Henry Gibbs, M.D., Charlotte Court House, Va.; New York University, New York, 1880; aged 64; died at his home, January 20.

John Richardson Dodge, M.D., Hudson, Mich.; University of Michigan, Ann Arbor, 1869; aged 68; died at his home, January 26.

John McPeck, M.D., St. Albans, Vt.; University of Vermont, Burlington, 1882; was found dead in his home, January 10.

Alexander C. Anderson, M.D., Petaluma, Calif.; Harvard Medical School, 1864; aged 74; died at his home, January 17.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

BINIODOL

Report of the Council on Pharmacy and Chemistry

In accordance with the usages of the Council the report which appears below along with the reports of the clinical investigation by Drs. Cole and Keidel upon which the recommendations of the referee were based were sent to the manufacturer for comment. The reply of the manufacturer contained no evidence which justified the Council in modifying the action already taken. Publication of the report was therefore authorized. W. A. PUCKNER, Secretary.

Biniodol was submitted to the Council by the manufacturer, Charles C. Yarbrough, Memphis, Tenn. The manufacturer claims the product is a solution of 1 per cent. of red mercuric iodid and 2.75 per cent. of guaiacol in bland vegetable oil. It is marketed with the implication that it is new and superior to other oil solutions of mercuric iodid. For instance:

". . . it is a straight solution of this mercurial compound, as no alkaline iodide or other chemical is used to bring about the solution." . . . "It is probably the first and only one-percent oil solution of straight mercury binodide made in America. . . ."

[The manufacturer, in a letter addressed to the secretary of the Council, explains: "By *straight* solution, I mean that the solution of the red mercuric iodid is effected without the aid of any alkaline iodid or other chemicals. . . . Biniodol was first offered early in 1912 . . ."]

"Biniodol is, therefore, superior and much to be preferred to other mercurials used for like purposes. It is highly active therapeutically, producing the desired effects, usually without the inevitable disadvantages of other mercurials. It rarely causes salivation, diarrhea, or other symptoms of mercurial intolerance, even when pushed to full therapeutic effect and when given for a considerable period of time. Nor does it produce anemia."

The Chemical Laboratory of the American Medical Association found that Biniodol contained 1 per cent. of mercuric iodid and 2.5 per cent. of guaiacol; hence the composition is essentially as claimed. It is not true, however, that Biniodol is the "first and only one-percent solution of straight mercury biniodide made in America." As shown in THE JOURNAL A. M. A., Dec. 9, 1914, p. 2247, formulas by Lemaire and Dunning for making a "straight" solution of mercuric iodid were published in this country in 1909 and 1910, respectively. Moreover, a 1 per cent. solution of mercuric iodid in oil is on the market and is described in New and Nonofficial Remedies.

To determine whether or not Biniodol is "superior and much to be preferred to other mercurials used for like purposes," the Council secured the cooperation of the Department of Dermatology and Syphilology of the Western Reserve University cooperating with the Cleveland City Hospital, and of the Johns Hopkins Hospital.[1] Each received three samples, labeled respectively, 1, 2 and 3: 1 contained Biniodol; 2, a 1 per cent. solution of mercuric iodid in oil; 3, a solution made up according to the formula of Biniodol, namely, 1 per cent. of mercuric iodid and 2.5 per cent. of guaiacol in oil. All the solutions were sterile. The investigators were not informed which preparation was designated by the respective numbers, but they were asked to use the preparations when intramuscular injections of a 1 per cent. oily solution of mercuric iodid were indicated, and to note what differences, if any, were observed following the use of the different solutions regarding pain, discomfort, induration and any other evidences of effects of the medicaments.

The Cleveland investigator reports that the patients were more or less confused in their replies to inquiries and gave rather indefinite and conflicting answers. After carefully

1. The reports of the investigators will be published in full in the annual Reports of the Council on Pharmacy and Chemistry, and in a reprint. The latter will be sent to any address on request accompanied with a stamped addressed envelope.

tabulating the replies, however, the following summary resulted:

1 was worse than 2 or 3 in 6 cases.
2 was worse than 1 or 3 in 5 cases.
3 was worse than 2 or 1 in 1 case.

The report from Johns Hopkins records a series of 117 injections followed by the estimated reactions recorded below:

1. Severe, 13; mild, 14; none, 4; unrecorded, 8=39
2. Severe, 5; mild, 15; none, 16; unrecorded, 5=41
3. Severe, 7; mild, 25; none, 3; unrecorded, 2=37

That is, when recorded in percentages:

1. (Biniodol) severe, 33.3; mild, 35.9; none, 10.3; unrecorded, 20.5.
2. (Without guaiacol) severe, 12.2; mild, 36.8; none, 39.0; unrecorded, 12.2.
3. (With guaiacol) severe, 18.9; mild, 67.5; none, 8.1; unrecorded, 5.5.

The manufacturer of Biniodol supplied the names of several physicians who have used that preparation in their practice. Correspondence with these elicited the following statements:

One had used Biniodol in forty-eight cases and states that "only a few patients complain of pain at all and then only of a general soreness in the muscle." This physician reports a limited experience with the use of another manufacturer's "mercury biniodide oil solution" (apparently six cases), but severe pain following the injections made it necessary to abandon that preparation.

Another of these physicians named by the manufacturer, without reference to any series of cases, reports that "Biniodol is superior to any [oily solution of mercury biniodid] that I have tried."

A third physician has "used it [Biniodol] a few times" and is "convinced that it has no special action or virtue" over "any red mercuric iodide in oil."

This evidence, in its most favorable estimate, shows Biniodol to be a good 1 per cent. solution of mercuric iodid in oil, but fails to justify attributing to the preparation any unique characteristics. The preparations made in the laboratory were as satisfactory, or better than the Biniodol, and the presence or absence of the guaiacol was of no consequence.

Biniodol conflicts with Rule 6, since claims of superior therapeutic efficiency made for it are not established;* and with Rules 8 and 10, since it is an unessential modification of an established nonproprietary article marketed under a proprietary name.

In view of the foregoing, the referee recommends that Biniodol be not accepted for New and Nonofficial Remedies, and that this report, including the clinical investigations of Drs. Cole and Keidel, be authorized for publication.

MORE MISBRANDED NOSTRUMS

Mecca Compound.—Mecca Compound was an ointment sold by A. D. Foster, E. W. Peterson, Sr., E. W. Peterson, Jr., and E. W. Raymond, who did business as the Foster-Dack Co., Chicago. It was analyzed in the Bureau of Chemistry, which reported that the stuff had a soft paraffin base containing carbolic acid, camphor, borates, zinc compound, a sodium soap and a trace of perfume. It was sold as a remedy for erysipelas, for the cure of gangrene or blood poison, cancers and bronchitis, a preventive of diphtheria, a remedy for pleurisy and pneumonia, for the cure of scarlet fever, as a remedy for smallpox, for the cure of appendicitis in its early stages, for the cure of lockjaw, goiter, measles and tuberculosis. These claims were declared false and fraudulent and applied knowingly, recklessly and wantonly. A plea of guilty was entered and the defendants were fined $50 and costs.—[*Notice of Judgment No. 4383.*]

The-Best Cough Remedy.—Davies, Rose & Co. (Ltd.), Boston, sold a mixture under the name "The-Best Cough Remedy" which the government chemists reported was a syrup, smelling and tasting of spearmint, and containing alcohol, chloroform and morphin. The claims made for it were such as to create in the minds of the purchasers the belief that the stuff was an effective remedy for incipient consumption, asthma, influenza, as well as being effective for the relief of consumptive patients in advanced stages of the disease. These claims the government charged were false and fraudulent. The company entered a plea of *nolo contendere* and was fined $50.—[*Notice of Judgment No. 4381.*]

Stella-Vitæ.—"Star of Life" was put on the market by the Thacher Medicine Company, Chattanooga, Tenn., and sold as a cure for "female weakness"; of course, it contained alcohol —20 per cent. The claims made were such as to create in the minds of the purchasers the belief that it was an effective remedy for all female weaknesses and diseases; was a cure for leukorrhea and would correct all irregularities peculiar to women. The government declared these claims false and fraudulent and applied knowingly and in reckless and wanton disregard of their truth or falsity. The company pleaded guilty and was fined $75 and costs.—[*Notice of Judgment No. 4389.*]

Vegetable Pulmonary Balsam.—Cutler Bros. & Co., Boston, sold this preparation under the claim that it was a remedy for consumption and pulmonary affections of every kind. Government chemists reported that the stuff was a sugar syrup, flavored with spearmint and sassafras and containing alcohol and opium. The therapeutic claims were declared false and fraudulent and made knowingly, recklessly and wantonly. The firm pleaded *nolo contendere* and was fined $100.—[*Notice of Judgment No. 4380.*]

Correspondence

The Young Doctor and Health Insurance

To the Editor:—In THE JOURNAL, January 27, under Current Comment, in discussing compulsory health insurance, you suggest that you would welcome "constructive discussion of health insurance." Having read Dr. Lambert's excellent paper in the same issue, I take the liberty of writing you to present a point of view which may be different from those taken by many men in the medical profession.

As director for the Appointments Bureau of the Harvard Medical School, I am often called on to advise young men entering the practice of medicine and to aid them, as far as possible, in getting a start. What chance has the young graduate of a modern medical school and hospital, trained in our best knowledge of diagnosis and treatment, to practice in a way satisfactory to himself and to the community? The medical school has turned out an alert, resourceful, intelligent, trained physician. His ideals are high, his courage good, his pocketbook empty. What opportunity does the average community offer to such a man? A very few of the better men are taken in as assistants to older men at small salaries. The Appointments Bureau seldom has a call for such assistants. What does general practice offer such young men? A fierce financial competition in medium and large cities, while the rural districts offer hard work and niggardly pay. If he has large talents to offer, he is more feared and less welcome by his older competitors. Lately a few small salaried fellowships have been offered by the Boston Dispensary. Five Harvard Alumni teaching fellowships of $500 each are eagerly sought. Aside from these few small aids, what can the young practitioner hope for?

The public and many of the medical profession still believe that for small fees, one and two dollars an office call and three dollars a house call, a man could do a family practice

which would pay him a living, including automobile, etc. If he attempts this, he finds that careful, exact diagnosis is impossible in the time available. Free consultation with his colleagues, as he is accustomed to in the hospitals (group medicine), is out of the question, except in rare cases. His returns, certainly from families making below $1,200 a year, are entirely inadequate to meet expenses necessary to do the thorough work he is trained to do and which would satisfy his professional ambition. He is forced to spend less time and care on each case and to try to increase the number of cases in every way possible. Does this produce good medicine or promote an interest in preventive medicine?

Professional ambition is opposed by financial necessity and financial competition. All measures of preventive medicine tend to reduce financial returns. The choice lies between conscientious work with slow starvation, or lowering standards of service and adopting all possible business-getting methods. The economic basis of the practice of medicine is wrong. The old system is not suited to the modern medical requirements. It is organized for pathologic medicine, not preventive medicine.

What can be done to remedy this conflict between professional ambition and financial compensation? Our experience at the Appointments Bureau leads us to advise young men to seek salaried positions, such as those of public health officers. In such positions, the doctor's professional interest is in accord with the interest of the public and largely independent of his financial returns. He can afford to be ethical. Would it not be possible to promote this principle in health insurance? Might not the way be prepared for the young man to enter the practice of medicine on a satisfactory basis, both professionally and financially? Does not health insurance offer an opportunity to develop group medicine on a salary or equally satisfactory basis, to the great advantage of the medical profession? Will such a method answer the chief misgiving in regard to health insurance felt by medical men, namely, Will the public get the best service? Cannot we older men guide this new medical organization so as to give opportunity to the young men to work on a salaried group-medicine basis? Cannot a system be provided for admitting young men, assimilating them, promoting them, and finally retiring them at least from active service at a reasonably early age? After from five to ten years of service, they might be established in more paying private practice and willingly release this work to younger men.

Does any one doubt that the public and even the medical profession would benefit by welcoming and using these young, ambitious, well trained doctors with high ideals into the organization of health insurance?

A. B. EMMONS 2D, M.D., Boston

The Bacteriologic Phase of Chronic Convulsive Toxemia (Epilepsy) of Intestinal Origin

To the Editor:—As a necessary supplement to reports previously contributed by me to THE JOURNAL, March 27, 1915, Jan. 29, 1916, and May 20, 1916, relative to the causal relationship of constipation to epilepsy, or, more properly, chronic convulsive toxemia, I beg leave to make the following statement:

1. The recognition of the relationship of constipation to epilepsy was forced on me by purely accidental experience involving several cases in which recovery from epilepsy had followed the successful and permanent relief of the constipation by surgical means. Then I began seeing many patients with epilepsy, all of whom were constipated and toxic. The constipation, as now shown by nearly 3,000 Roentgen-ray plates in my possession, was uniformly associated with mechanical conditions of the intestinal tract that interfered with and retarded the fecal current. The relief that I was and am able to give these patients, so far as the epilepsy is concerned, is relative to the degree to which I can restore and maintain normal bowel action.

2. But I was and am seeing many cases in which these same visceral states are not associated with epilepsy. I was early impressed that to explain this variation in result seemed logically to require the existence of an independent and determining factor. What was it? There were several theories to choose from. That of heredity was defective, because less than 2 per cent. of my own cases gave a history of even presumptive heredity. Nobody has claimed that it is present in more than a minority of cases and nobody has explained why it capriciously asserts itself, if at all, at all ages from infancy to old age. The theory of gross lesions of the brain would not do because they are not always found in epileptics; they are as often found in nonepileptics, and, when found in either class, are recognizable as secondary or terminal, and not causal conditions. The theory of cerebral traumatism, whether parturient or later, and that of perturbation of function in the ductless glands, were equally open to logical objection—based chiefly on the inconstant relation of these conditions to the epilepsy. The only conditions that I found constantly present in my cases were constipation with resulting toxemia. It seemed rational, therefore, that the variation in clinical manifestation must be determined by corresponding variation in the general toxic factors obviously present in all cases. The toxins present in these cases like all toxins were derived from intestinal bacteria and if there were variations in the toxins, such variation was doubtless due to corresponding variation in the organisms from which they were derived. In other words, it seemed logical from these known premises that the special phenomena of epilepsy might be accounted for by the incidence of a special organism in the intestinal flora, which organism or its toxin, like that of tetanus, or both, absorbed into the blood, would cause the convulsive phenomena.

3. With these impressions in mind I directed my bacteriologic service to make a systematic examination of the blood in all convulsive cases which were presented for diagnosis. The result of this routine was that after several months I was furnished the data embraced in my report submitted to the Cincinnati Society for Medical Research. The organism there described was sent in the form of photographs, slides and cultures, whenever requested, to various institutions and independent investigators with the request that each take up the investigation *de novo* with reference to confirming or disproving the findings which I had published. Several investigators complied with my request, some with positive and others with negative findings. At the same time my own bacteriologic service went over its own work in a very painstaking way. As a result I have just had submitted to me the protocols of 578 observations, of which 491 were negative and 114 were positive. In a final series of thirty-six consecutive cases at the Sterling Hospital, all were negative. The report concludes with the statement that "with a revised technic and modified surroundings, it has not been possible to confirm the observations formerly submitted to you." In view of this finding, I feel it my duty at once to request that so much, but only so much, of my previous contributions as relate to the identity of a presumably specific organism and to the existence of an actual bacteremia in these cases may be considered as withdrawn. I make this request with my apologies for what now seems to have been premature publication, and for which I alone was responsible.

4. In justice to the importance of this investigation, now in the hands of the profession, I must urge that the forgoing may not be construed as closing the subject of the bacteriology of chronic convulsive toxemia. There are already too many important facts reported by too many competent observers working at too many different angles to justify an abandonment of the task. There are other findings in the blood reported to me in a private way that need to be followed out with care by investigators having the work in hand. While this is true, it is of great importance that the study shall not be restricted to the bacteriology of the blood in these cases. Three important reports have reached me relative to bacterial findings in the spinal fluid of epileptics. One letter just at hand from one of the largest institutions for epileptics in America reports the presence of an organism with identical morphology in each instance found in the spinal fluid in sixteen cases of epilepsy. I am now convinced that the subject cannot be said to have been exhausted until the intestinal

flora of these cases shall have been studied and the power of each of its constituent organisms or of its toxin to produce convulsions shall have been determined by ample experimentation. It is now apparent to me that no less investigation can determine whether or not any intestinal organism, either directly or through its toxins, or both, is the determining factor in causing the convulsions in the cases under consideration. No less an obligation rests on large institutions equipped for research purposes. The stimulation of such investigation has been the leading motive of my various tentative publications, as shown notably in that of May 20, 1916, when I stated that "I feel that it is important to place findings, as far as they have gone, and conclusions, as far as they have been reached, before the profession, that they may at least serve as the basis of further investigations, especially by those with large clinical and laboratory facilities at their disposal."

In the meantime, the earnestness of the appeal for relief and the success so far realized make it necessary that, in conformity with my own practice, these cases shall continue to be treated as cases of *general* convulsive toxemia of intestinal origin.

CHARLES A. L. REED, M.D., Cincinnati.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

COLLOIDS — MENDELEJEFF'S PERIODIC LAW — MARSH'S TEST — WATER PURIFICATION — QUARANTINE — SEWAGE DISPOSAL

To the Editor:—Kindly give me a few lines in your valuable journal for the following information:

1. What are colloids? How do they behave in the process of dialysis?
2. What is Mendelejeff's periodic law?
3. Explain Marsh's test for arsenic.
4. What is the best means for purification of a city water supply obtained from a sewage-polluted river?
5. How long should patients afflicted with the following diseases be quarantined? Yellow fever, measles, diphtheria, smallpox, whooping cough, chickenpox, typhus, plague and scarlet fever.
6. Discuss proper means of sewage disposal so that other towns on the stream are safe.

Please omit my name.

T. E. A.

ANSWER.—1. The colloidal condition may be defined as the condition in which an insoluble substance, as far as ordinary observation and the common methods for separation (filtration, sedimentation, etc.) are concerned, *the substance appears to be present in actual solution,* whereas *in reality* it is present as a suspension of finely divided particles. An extremely finely divided solid suspended in liquid, or an emulsified liquid suspended in another liquid, are the most common types of such mixtures. For convenience colloids are divided into two classes, suspensoids and emulsoids. The colloidal solutions of metals are typical suspensoids, being easily precipitated by the action of salts, and they do not gel. Emulsoids, of which, protein colloids, starch and gelatin are types, have the property of forming semisolid or solid gels. A colloid may be either a crystalline or noncrystalline body, the original properties of which are often changed in becoming colloidal.

2. According to Mendelejeff's scheme, the elements are arranged in arbitrary sequence of their atomic weights, and in series, depending on a periodic recurrence of specific properties. The periodic law, therefore, may be stated thus: "The properties of elements are periodic functions of their atomic weights."

3. Marsh's test depends on the formation of hydrogen arsenid (arsine H_3As) from soluble arsenic compounds by the action of "nascent" hydrogen. On burning a stream of hydrogen carrying a small amount of hydrogen arsenid, the latter is broken down, and the arsenic may be deposited on a cold dish. Details of the method of carrying out the test may be found in almost any book on chemistry.

4. Either mechanical or sand filtration, and perhaps treatment by the hypochlorite method, should prove effective. The details cannot be discussed here, but may be obtained from publications on the subject, such as one referred to under 6.

5. The period of quarantine for infectious diseases is a matter depending largely on local laws and ordinances, and varies in different places. In the case of the insect-borne diseases, the period of quarantine is usually the period of incubation of the disease. This, according to government quarantine regulations, for yellow fever is six days, typhus fever, twelve days, plague, seven days. The period of quarantine for measles is given by Osler as four weeks. For diphtheria no time is given, but the convalescent should show two negative cultures. This rule is being adopted by many health boards. For smallpox the period of incubation is fourteen days. It is usually asserted that smallpox convalescents should not be discharged until complete desquamation. No period is given for whooping cough or for chickenpox, and would depend on local laws. The period usually given for scarlet fever is from six to eight weeks.

6. From "Preventive Medicine and Hygiene," M. J. Rosenau, Appleton & Co., New York, 1916, p. 955 et seq., we abstract the following information regarding the treatment of sewage: "By appropriate processes sewage can be artificially purified so that the decomposable organic matter is removed or oxidized and the bacteria removed or killed. Complete purification is not attempted as being too difficult and expensive, but the degree of purification is adjusted to the needs of the particular situation. Methods of sewage treatment are: (1) separation of the suspended matter from liquid sewage; (2) destruction of putrescible organic matter in liquid sewage and by oxidation and bacterial action; (3) transmission of sludge to the condition of stability and inertness by bacterial action without oxidation; (4) destruction or removal of bacteria from the liquid effluent. This is done by various processes, such as screens, detritus tanks, plain settling tanks, septic tanks, digestion tanks, chemical precipitation tanks and roughing filters. Purification processes include surface irrigation, broad irrigation, intermittent filtration contact beds and trickling filters. In addition there are finishing processes and methods of sludge disposal. A recent form of tank disposal is the activated sludge method that combines forced aeration with bacterial action." As will be seen, the subject is a very broad one, and space could not be given to a full discussion of it in this department. The bacterial content of the effluent from disposal plants of the types mentioned above varies greatly. A table is given by Rosenau showing this. Safety in the use of water from streams into which the sewage effluent is discharged would depend on proper purification, as mentioned in No. 4. Pennsylvania has a law prohibiting the discharge of all sewage effluents or factory wastes into any stream. This applies also to the sewage from single houses in town or country; but, according to Rosenau, experience has demonstrated that polluted waters are being constantly purified by means of filtration methods so that they are reliably wholesome.

TREATMENT OF CHILBLAINS

To the Editor:—What is the best treatment for chilblains? What can be done when localized swellings occur and the patient suffers considerable pain? Is there any prophylactic treatment?

The books recommend internal treatment of calcium lactate and local applications of tincture of iodin, but I have obtained no success with those measures.

J. W. O'NEILL, M.D., Albertville, Minn.

ANSWER.—Prophylactic measures may be taken against chilblains before the advent of cold weather, or between exacerbations. The patient should be instructed to wear warm, loose woolen stockings and warm shoes. The feet should be bathed in warm water daily, and after the bath should be rubbed briskly, quickly dried, and a bland powder dusted on. Solution of potassium arsenite (Fowler's solution) in small doses is said to be prophylactic.

When the chilblains have developed, more active treatment should be employed. If the patient's general health is below normal, tonics, particularly strychnin and arsenic, are indicated. When the condition is very acute, it is well to use soothing lotions, as a calamine lotion, freely for a time. In the less acute cases, the greatest improvement is usually obtained with the use of stimulating applications, but the large number of these which have been recommended shows that no one of them is successful in all instances. Ichthyol, either in the form of a 25 per cent. ointment, or used in lotion form, one part to two or three parts of water, is perhaps most commonly recommended. Rubbing with oil of turpentine, pure or diluted, with camphorated soap liniment or with phenolated oil, is sometimes employed. In the stubborn cases, the use of the galvanic current has at times produced a favorable effect, the positive pole being applied to the affected part, the negative pole to a neighboring region, near the truncal nerve.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, April 3-4. Sec., Dr. John Wix Thomas, 306 Goodrich Bldg., Phoenix.

COLORADO: Denver, April 3. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: Regular: New Haven, March 13-14. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven.

CONNECTICUT: Homeo.: New Haven, March 13. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

CONNECTICUT: Eclectic: New Haven, March 6. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

IDAHO: Boise, April 3. Sec., Dr. Charles A. Dettman, Burke.

MAINE: Portland, March 13-14. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MINNESOTA: Minneapolis, April 3-6. Sec., Dr. Thomas S. McDavitt, 741 Lowry Bldg., St. Paul.

MASSACHUSETTS: Boston, March 13-15. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

MISSOURI: St. Louis, March 26-28. Sec., Dr. J. A. B. Adcock, 325 E. High St., Jefferson City.

MONTANA: Helena, April 3. Sec., Dr. W. C. Riddell, Helena.

PORTO RICO: San Juan, April 2. Sec., Dr. Quevedo Baez, San Juan.

RHODE ISLAND: Providence, April 5-6. Sec., Dr. Gardner T. Swarts, State House, Providence.

Wisconsin June Report

Dr. J. M. Dodd, secretary of the Wisconsin State Board of Medical Examiners, reports the oral, practical and written examination held at Milwaukee, June 27-29, 1916. The total number of subjects examined in was 17; total number of questions asked, 98; percentage required to pass, 75. The total number of candidates examined was 65, of whom 64 passed, including 2 osteopaths, and 1 osteopath failed. Two candidates were granted reregistration licenses by examination. Twenty-eight candidates were licensed through reciprocity. The following colleges were represented:

PASSED			
College	Year Grad.		Per Cent.
Chicago Coll. of Medicine and Surgery	(1914)	74.6,	77.7
Rush Medical College	(1916)		81
University of Illinois (1914) 84.8; (1915) 85.5; (1916) 84.7, 86.1, 86.3, 88.2, 89.7.			
University of Louisville	(1916)		79.7
Harvard University	(1915)		89.2
Detroit College of Medicine	(1900)		78.8
University of Michigan, Medical School	(1916)		86.6
Jefferson Medical College of Philadelphia	(1916)		86.6
Marquette University (1916) 77, 78.2, 78.6, 79.1, 79.6, 79.6, 80, 80.2, 80.5, 80.6, 80.6, 81, 81.5, 81.5, 81.5, 81.7, 82, 82.3, 82.6, 82.7, 83*, 83.5, 83.6, 83.7, 84, 84.2, 84.2, 84.3, 84.5, 84.6, 84.8, 85.1, 85.1, 85.3, 85.5, 85.5, 85.7, 86, 86.1, 86.5, 86.6, 86.6, 87.5, 87.6, 88.2.			
Milwaukee Medical College	(1912)		77.3
University of Toronto	(1910)		84.3

* Official information indicates that this candidate has not graduated.

LICENSED THROUGH RECIPROCITY			
College	Year Grad.		Reciprocity with
Atlanta College of Physicians and Surgeons	(1911)		Georgia
Bennett College of Eclectic Medicine and Surgery	(1900)		Illinois
Bennett Medical College	(1915)		Illinois
	(1911)		Tennessee
Chicago College of Medicine and Surgery	(1911)		Illinois
Chicago Homeopathic Medical College	(1902)		Minnesota
Chicago Medical College	(1886)		Minnesota
Coll. of Phys. and Surgs., Chicago (1905) Arkansas; (1912) Illinois Medical College	(1903)		Illinois
Northwestern University	(1914)		Illinois
Rush Med. Coll. (1913) Missouri; (1913) (1914)	(1915)		Illinois
University of Illinois	(1914)	(1915)	Illinois
Indiana University			Indiana
College of Physicians and Surgeons, Baltimore	(1912)		Maryland
Johns Hopkins University	(1900)		New York
University of Minnesota	(1903)		Minnesota
Central Medical College of St. Joseph	(1900)		Idaho
St. Louis University	(1915)		Missouri
Fordham University	(1914)		Illinois
Starling-Ohio Medical College	(1911)		Ohio
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1909)		Minnesota
Vanderbilt University	(1913)		Kentucky
University of Heidelberg, Germany	(1899)*		Tennessee

*Graduation not verified.

Missouri Reciprocity Report

Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, reports that the following candidates were licensed through reciprocity from July 1 to Dec. 31, 1916.

LICENSED THROUGH RECIPROCITY			
College	Year Grad.		Reciprocity with
Hahnemann Med. Coll. and Hosp. of Chicago	(1909)		Tennessee
Rush Medical College	(1900) Iowa; (1914)	(1916)	Illinois
University of Illinois	(1913)		Illinois
Kansas Medical College	(1913)		Kansas
University of Kansas	(1915, 2)		Kansas
Louisville Medical College	(1905)		Indiana
University of Louisville	(1915)		Kentucky
Johns Hopkins University	(1914)		Maryland
Harvard University	(1911)		Illinois
University Med. Coll. of Kansas City	(1913)		Kansas
John A. Creighton Medical College	(1912)	(1914)	Nebraska
Cincinnati Coll. of Medicine and Surgery	(1895)		Ohio
Eclectic Medical College, Cincinnati	(1895)		Kansas
Toledo Medical College	(1900)		Ohio
Meharry Medical College	(1903) (1910)	(1912)	Tennessee
Memphis Hospital Medical College		(1912)	Tennessee
University of Tennessee		(1915)	Tennessee

Connecticut November Report

Dr. Charles A. Tuttle, secretary of the Medical Examining Board of the State of Connecticut, reports the oral, practical and written examination held at New Haven, Nov. 14-15, 1916. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 23, of whom 16 passed and 7 failed. The following colleges were represented:

PASSED			
College	Year Grad.		Per Cent.
Yale University	(1913) 78.5;	(1916)	88.7
Tulane University of Louisiana	(1911)		81.9
College of Physicians and Surgeons, Baltimore	(1914) 78.5, 84.6,		88.6
Harvard University	(1911) 84.7; (1912) 86.6;	(1916)	82.1, 83.4
Columbia University, Coll. of Physicians and Surgeons	(1915)		79.6
Jefferson Medical College of Philadelphia	(1914)		76.3
Medico-Chirurgical College of Philadelphia	(1912) 88.9;	(1916)	76.6
University of Vermont	(1914)		80.5
University of Toronto	(1908)		76.8

FAILED		
Bennett Medical College	(1914)	62
College of Phys. and Surgs., Baltimore	(1914)	69.4
Eastern University*	(1913)	55.2
Harvard University	(1915)	69.3
University of Michigan, Med. School	(1906)	71.4
Long Island College Hospital	(1916)	70.8
Jefferson Medical College of Philadelphia	(1912)	70.6

* Officially reported as not recognized by the Maryland State Board of Medical Examiners.

Book Notices

MECHANISMS OF CHARACTER FORMATION. An Introduction to Psychoanalysis. By William A. White, M.D. Cloth. Price, $1.75. Pp. 342. New York: The Macmillan Company, 1916.

This is an outline of the tenets of Freud and his followers. The subject is treated with reason and logic and without polemic. Whether or not one is convinced that the psychology of Freud is a sound psychology, one must concede that Dr. White has approached the subject in the proper way. In a chapter on genetic approach, he shows that consciousness and conduct should be studied in connection with their development, with what has gone before, in the individual and in the race. The theme is carried further in a study of the relation of the foreconscious and the unconscious to actions of the individual. In describing the conflict, the author says, "The opposing forces . . . are the conscious and the unconscious," that is, the conflict is between the instinctive tendency as determined by the race and individual histories, and the demands of actual present situations. After an interesting account of symbolism, the author passes to dream mechanisms and the family romance, the latter, of course, including the so-called Oedipus and Electra complexes. These chapters are distinctively freudian. Chapters on the will to power, which may be said to be that inherent force which drives us to acquire new things and powers, contain a further exposition of the "libido," which is treated in a broad and fundamental way. The chapter on extroversion and introversion is quite technical, and is an attempt to classify men on the basis of the relation of their libido to environment—things and persons. A chapter which is somewhat of a step aside considers Adler's ideas on organ inferiority. The matter is interesting and suggestive, but some of it rather far fetched. A chapter on the resolution of the conflict takes us back into the strictly freudian. The general practitioner will have a hard time in trying to understand all of this treatise, and we fear that even psychologists, alienists and neurologists who as yet are uninitiated into freudian circles may find more than a little that is not exactly clear. None the less, this is one of the

best presentations of the subject to date. It shows moderation, even, we suspect, considerable self-restraint. No one interested in the psyche, in the neuroses or psychoses can read it without interest and profit. The wealth of illustrative facts from biology, ethnology, philology, chemistry, archeology and other departments of learning adds to the interest, and the author's handling of the libido and sex matters is such as to render nugatory one of the most frequent protests against the freudian philosophy.

BACK INJURIES AND THEIR SIGNIFICANCE UNDER THE WORKMEN'S COMPENSATION AND OTHER ACTS. By Archibald McKendrie, F.R.C.S.E., Surgeon in Charge of Surgical X-Ray Department, Royal Infirmary, Edinburgh. Cloth. Price, $1.25 net. Pp. 173, with illustrations. New York: William Wood & Co., 1916.

The author justly states that back injuries have a bad reputation. "The workman looks upon them with apprehension, the insurance company with doubt, the medical examiner with suspicion, the lawyer with uncertainty, and the court with as open a mind as is possible under the circumstances. . . . This little book is offered to the medical and legal profession as an honest effort to throw some light into the existing darkness." Since the introduction of workmen's compensation laws, the number of cases of injury to the back which appear for adjudication has almost equaled that of the so-called traumatic neuroses in personal injury courts. These cases are by no means all frauds, yet the difficulty of determining the presence of positive objective evidence of injury is often so great, and it must be said the methods of detecting them frequently so little understood, that many of the cases are incorrectly diagnosed, at times to the disadvantage of the person injured and at other times to the disadvantage of the employer. Any expressed opinion concerning a case of this kind, not based on a careful examination, with a full knowledge of the methods of diagnosis, is of no value. The author treats the subject clearly and shows not only that he has given it much thought and study, but also that he has had a large experience in this class of cases. Every physician who expects to handle such cases should read this book.

SURGICAL AND GYNECOLOGICAL NURSING. By Edward Mason Parker, M.D., F.A.C.S., Surgeon to Providence Hospital, Washington, and Scott Dudley Breckinridge, M.D., F.A.C.S., Gynecologist to Providence Hospital. Cloth. Price, $2.50 net. Pp. 425, with 134 illustrations. Philadelphia: J. B. Lippincott Company, 1916.

A work on nursing by two medical men, a surgeon and a gynecologist, is somewhat unusual, not that such men should not know about nursing, but for the reason that works on this subject have been written mostly by teachers of nurses instead of teachers of surgery. As a result we find, as might have been expected, that the authors go more extensively into the medical aspects of the subject than is customary in works of this character. Considerable space is devoted to pathologic subjects, such as infection, bacteria, the reaction of the cells of the body to invading cells, carriers of disease organisms, tissue changes in inflammation, phagocytosis and cell degeneration. While it will be granted as a general proposition that one cannot have too much knowledge, yet it must be admitted that, when writing on the subject of nursing, one can go too deeply into subjects belonging to medicine at the risk of transforming what might have been a very good nurse into a very poor doctor. Parts 3, 4 and 5, on minor technic in surgical nursing, the patient and the operation, are particularly commendable for the amount and character of the detailed information which they contain. The chapter on the nurse as an observer is one of the best in the book, and should be learned by heart by every nurse. Part 6, on supplementary chapters, which closes the work, is really a brief discourse on first aid.

A HANDBOOK OF INFANT FEEDING. By Lawrence T. Royster, M.D., Attending Physician, Bonney Home for Girls, Norfolk, Vt. Cloth, Price, $1.25. Pp. 144, with five illustrations. St. Louis: C. V. Mosby Company, 1916.

This describes the method of feeding with different percentages of food elements. The author adheres closely to his subject, and has based his text mainly on his successful experience in infant feeding.

Medicolegal

Malpractice and the Statute of Limitations

(Hurlburt vs. Gillett (N. Y.), 161 N. Y. Supp. 994)

The Supreme Court of New York, Special Term, Kings County, says that, prior to 1900, actions against physicians and surgeons, based on their negligence, which resulted in bodily injury, were within the three-year statute of limitations of New York State. By Chapter 117 of the laws of 1900, Section 384 of the code of civil procedure was amended by adding the word "malpractice" as an actionable case to the enumeration of actions to recover damages which had to be commenced within two years. But, in adding the word "malpractice," the legislature did not undertake to define the term. Just what professions were intended to be benefited is left to conjecture, save so far as judicial discussion and consideration had sanctioned a general use of the word. It is said in 23 Cyc. 121 that, as applied to physicians and surgeons, malpractice means negligent acts committed by a physician in treating his patient, or the unskilful treatment by a physician or surgeon, in consequence of which the patient is injured. And again: "Malpractice, in its ordinary sense, is the negligent performance by a physician or surgeon of the duties which are devolved and incumbent on him on account of his contractual relations with his patient" (30 Cyc. 1546). Prior to the legislation of 1900, referred to above, the term "malpractice" was applied by the Court of Appeals of New York in a number of cases as characterizing negligence on the part of physicians and surgeons. With this eminent recognition and application of the word "malpractice" to the negligent and unskilful conduct of physicians and surgeons, there should be no judicial difficulty in holding that the legislative addition of "malpractice" as one of the causes for which an action for damages could be maintained only if commenced within two years was intended to cover actions for negligence on the part of physicians and surgeons which resulted in bodily injury or hurt to a patient.

Fees Which Physicians May Charge

(Succession of Percival (La.), 72 So. R. 467)

The Supreme Court of Louisiana, in holding that a physician should be allowed $1,500 for services as charged, holds that a physician has the right, in the absence of a custom of his own, to charge for his visits, by day or night, at least the fee sanctioned by the custom of the community in which he lives; nor is he obliged, in so doing, to rate himself below the class to which, in his opinion, he properly belongs; and, in such case, the burden rests on the patient, who refuses to pay, to show a better reason for such refusal than that the physician is comparatively fresh from the seats of learning. It may happen that the knowledge of the schools goes beyond that on which reputations have been founded, and that the later graduate, bringing, with his diploma, the latest discoveries, is more competent to deal with a particular case than the earlier, with the experience of a past generation.

Workmen's Compensation Act Allows Nothing for Malpractice

(Ruth vs. Witherspoon-Englar Co. (Kan.), 157 Pac. R. 403)

The Supreme Court of Kansas reverses a judgment obtained by the plaintiff, who, while at work for the defendant, had his leg broken between the hip and the knee, the court holding that the plaintiff's judgment here could not be increased by the fact that through the incompetent or negligent handling of the case by physicians a disability which would otherwise have been merely temporary was rendered permanent. The court says that, even if circumstances had been shown sufficient to charge the defendant with responsibility for the fault of the physicians, the rule would not be altered; for liability under the compensation act cannot be made to depend on the degree of care exercised. A part of the loss occasioned by an accidental injury to a workman is cast on the employer, not as reparation for wrongdoing, but on

the theory that it should be treated as a part of the ordinary expense of operation. So much of an employee's incapacity as is the direct result of unskilful medical treatment does not arise "out of and in the course of his employment" within the meaning of that phrase as used in the statute. For that part of his injury his remedy is against the persons answerable therefor under the general law of negligence, whether or not his employer be of the number. In other words, in an action under the workmen's compensation act of Kansas, a recovery can be had only on the basis of disability to labor resulting from the injury received in the course of employment, without the intervention of an independent cause, the separate consequences of which admit of definite ascertainment. It cannot be augmented by the fact that the disabling effects of the injury are increased or prolonged by incompetent or negligent surgical treatment, even where the employer is responsible therefor.

Society Proceedings

COMING MEETINGS

Am. Assn. of Pathologists and Bacteriologists, New York, April 6-7.
California State Medical Society, San Diego, April 17-19.
Louisiana State Medical Society, Alexandria, April 17-19.
Missouri Valley Medical Society, Keokuk, Ia., March 22-23.
North Carolina State Medical Society, Asheville, April 17.
Tennessee State Medical Association, Nashville, April 3-5.

ANNUAL CONGRESS ON MEDICAL EDUCATION, PUBLIC HEALTH AND MEDICAL LICENSURE

THIRTEENTH ANNUAL CONFERENCE OF THE COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN MEDICAL ASSOCIATION

Held in Chicago, Feb. 5, 1917

(Concluded from page 575)

Practical Examinations by State Licensing Boards

DR. WALTER P. BOWERS, Boston: Besides ascertaining the moral character and the training of the applicant, it is the task of a state medical board to determine his fitness for licensure. This is done either by the board's own procedures or on credentials from some other examining board. No high grade medical school today depends wholly on written work and educators have become convinced that examinations also must be conducted partly along practical lines. Experience shows also that the requirement of the practical work has led some medical schools to do more efficient teaching. State boards must not fall behind the trend of modern medicine. Educators will never criticize fair, practical exercises conducted by well qualified examiners.

A circular letter, sent to all licensing boards of the United States, brought forty-six replies setting forth the following facts:

Fifteen boards have to a certain extent adopted practical tests in their examinations. Two (Maryland and Indiana) report that practical work has been tried and given up because of the time and expense required and because its scope was limited. It was stated that when a man was asked to map out the heart, to show the location of internal organs, or demonstrate an operation for empyema, he would usually look up at the ceiling and recite from memory; but on being told to demonstrate, not recite, he would fall down completely.

One examination subject before the Massachusetts board demonstrated that the average applicant obtained only about 5 per cent. better ratings in written than in practical work. At one of the early examinations, however, three patients having strictly normal heart action were used in the practical test in clinical diagnosis. In their examination of these patients by applicants almost every disease in the category was mentioned and scarcely any applicant declared the findings normal. Results at more recent examinations have been much improved.

Minnesota's Practical Examinations

DR. ANNAH HURD, Member of the Minnesota State Board of Medical Examiners, Minneapolis: Practical examinations were introduced in Minnesota about eight years ago. The effect was so satisfactory that they have been gradually elaborated and improved so far as means and opportunity would permit. In clinical diagnosis, the applicant is given one hospital patient with a large number of physical findings and is allowed about one and a half hours to examine the patient. Laboratory tests must be made also if the nature of the disease requires them; and a written record of the case is required. An oral examination is then given covering the case in hand and similar conditions, the applicant being questioned on the differential diagnosis. Two such cases would be a fair test for each applicant. This method obtains a better insight into the process of reasoning by which the applicant arrives at his final conclusions. It allows of a far better estimation of his knowledge and skill than reams of written words.

The board desires to make a closer personal supervision during the examinations in bedside diagnosis. With our present lack of attendants, it is necessary to pass from one candidate to another, leaving the applicant alone a part of the time.

Next in importance is the clinical laboratory examination. It now consists of a very simple urinalysis, namely, noting color, reaction, specific gravity; applying two tests for albumin, heat and nitric acid; two tests for sugar, and a microscopic examination of sediment for casts, pus, blood and crystals. To this should be added tests for indican, and estimation of total solids, urea, albumin and sugar.

Examinations should be made as nearly similar as possible to the real tests of actual practice, so we may know when we grant a license to practice medicine that the applicant is able to use practical methods of diagnosis for the benefit of his patients.

DISCUSSION

DR. W. J. MEANS, Columbus, Ohio: The problem of determining the fitness of persons to practice the healing art is perplexing because of several disconcerting factors confronting the licensing boards. Among these are: (1) The attitude of practitioners of the various cults who seek the right to use their methods without meeting the educational requirements of scientific medicine; (2) inadequate facilities for conducting laboratory and clinical tests for large numbers of applicants, and (3) the lack of sympathy on the part of the public toward restrictive measures against persons whom they may want to employ.

A number of the licensing boards have inaugurated limited practical examinations, but in no instance are they given due weight as determining factors as compared with the written tests. The Ohio board inaugurated practical tests several years ago and has gradually increased their severity, but I am informed that the proportionate value to the written test is only about 25 per cent.

The examination of the National Board of Medical Examiners as reported recently made laboratory and clinical tests of equal importance with the written examination—a move in the right direction. It might be radical to advocate that a higher value—66⅔ per cent.—be given to the practical tests. Tests should be made on the following basis:

1. Examinations should be comprehensive so as to furnish a satisfactory estimate of the applicant's knowledge of medicine and of his training in the methods of clinical diagnosis. 2. No license to practice the healing art by any method should be granted until the applicant has demonstrated by written, oral, laboratory and clinical tests his knowledge and training in anatomy, physiologic chemistry, physiology, pathology, bacteriology, physical diagnosis, surgery, medicine, obstetrics and hygiene. Granting the force of the contention that drugless practitioners should not be examined in the clinical branches along lines they do not practice, they can make no logical objection to an examination of equal severity in scientific subjects, physical diagnosis, clinical pathology and hygiene.

DR. HERBERT HARLAN, Baltimore: Several years ago the Maryland board required a written examination, but we had the word "written" stricken out, so that we could try practical examinations. The following year we had about 160 applicants for the June examination and decided that practical examinations were impracticable with the number of applicants we had in Baltimore.

DR. JOHN M. DODSON, Chicago: Last year I went to Minnesota to see the practical examination. While it is not ideal, and is not so comprehensive as the one that they give in England, it is a great improvement on the methods now in vogue in most states. Just so soon as the other state boards adopt a plan of that sort, just so soon will it be easier to interest the medical student in his course of instruction in the training of his eye and his ear and his other faculties rather than interesting him in book cramming.

DR. CALVIN L. JOHNSTONBAUGH, Bethlehem, Pa.: Four years as an examiner in the subjects of diagnosis, symptomatology and toxicology show that medical colleges are not teaching these subjects as they ought to be taught. They are not teaching young men to differentiate one disease from another, or to tell the poisonous effects of drugs.

DR. GEORGE H. MATSON, Columbus, Ohio: When we inaugurated practical examinations in Ohio, we had chemical, bacteriologic and pathologic examinations only, but since then we have added other subjects.

DR. CHARLES H. COOK, Natick, Mass.: Any medical student can put on paper what should be found in a sample of urine in a case of chronic nephritis, but when it comes to a practical examination it is different. One applicant was given a specimen of urine taken from a nephritic, and after his examination the answer was, "Glycosuria, and a fine specimen, too."

The National Board of Medical Examiners

DR. ISADORE DYER, New Orleans: The first examination of the National Board of Medical Examiners was quite satisfactory from the several objectives for which the board has been created. It has demonstrated (*a*) that there are men willing to undertake a severe test of proficiency with a view to certification by a body qualified by experience and training to conduct an examination based on high standards; (*b*) the value of practical examinations; (*c*) the possibility of providing material for clinical and laboratory test; (*d*) the value of its test in providing the best of material for the federal services. Among the five candidates who passed the national board's examination, the one who had applied for admission to the Army Medical Corps was admitted without further mental examination.

The national board has learned that an examination, covering six days, is a large tax on the candidates and on the examiners, as well. Further experience may modify the scope and character of the tests, but for the present no change in the plan is likely.

The coordination of the Army and Navy Medical Schools and the Public Health Service, in their laboratories and with their teaching personnel, materially lessened the labors of the members of the board. The large service rendered by the staffs of the several government and other hospitals in Washington, in bringing clinical material to one central place for examination, made it possible to pick the best of a multitude of patients. As the examinations recur, these facilities will make for more and more systematic arrangement of material.

The Problem of Medical Cults

DR. DAVID A. STRICKLER, President of the Federation of State Medical Boards, Denver: No school of healing can attain any definite standing unless there is some basic element of truth underlying it, and nothing so elevates it in the eyes of the public as an evident persecution on the part of the medical profession. The wonderful results attained by highly scientific work within the medical ranks are too largely offset in the minds of the public by the vindictive spirit shown by the average member of the profession against any person or thing introduced to medicine with any suggestion of irregularity. A tolerant attitude, with a readiness to look for and to assimilate the good irrespective of its origin, will do more to eliminate sectarian medicine than all the legislative acts past or contemplated. In Colorado it is not the function of the state either to support or to interfere with any theory of treatment, no question on treatment has ever been permitted, and it has been the constant effort of the medical profession to establish the following principles:

1. The law regulating the practice of medicine is for the benefit of the public and not of physicians. 2. No person shall be allowed to practice the healing art in any of its divisions without first obtaining a license from the examining board. 3. The license to practice medicine shall be based on educational qualifications and not on sectarian views. 4. The same educational standards shall be applied to all persons desiring to exercise the same privileges, regardless of the method of healing employed.

Two years ago a compromise with the chiropractor was forced on us which provided for the issuance of a limited license to practice chiropractic, which is defined and limited to "the treatment of disease or morbid conditions of human beings by palpation, nerve-tracing, and adjustment of vertebrae by hand." To practice medicine in any other manner was made a misdemeanor subject to the penalty of practicing medicine without a license. The requirements for this license are: 1. Two years' continuous active practice of chiropractic in Colorado. 2. Six months' practice in the state, together with a diploma from a chiropractic college which required an actual attendance of not less than 400 hours of instruction of the individual applicant. 3. Applicants from out of the state and all others in the future shall present satisfactory evidence of graduation from a chiropractic school requiring personal attendance of not less than two years, of not less than 1,000 hours of instruction in each year.

I am strongly of the opinion that (*a*) the state is not concerned in the relative value of different methods of treatment but (*b*) must make sure that the individual has had a training in the basic sciences underlying medicine, so that he is qualified to recognize disease before he is permitted to undertake its treatment. (*c*) This knowledge should be ascertained by a single examining board in an impartial manner without sectarian bias. (*d*) Before taking an examination on medical subjects the applicant should possess adequate preliminary educational qualifications, as determined by persons of academic training who are not physicians. (*e*) No educational institution organized to grant degrees should be permitted to operate in the state without showing adquate funds, facilities and standards to justify such operation as measured by established educational standards and determined by educators.

DISCUSSION

MR. H. E. KELLY, formerly attorney for the Colorado State Board of Medical Examiners, Chicago: I think there is a general misapprehension that the law at any particular time ought to represent the highest view and the highest form of truth. The law never can be that, but always lags behind truth as ascertained at any particular time. The race has always developed great minds, far ahead of the general knowledge and information of the race as a whole. These men have ascertained truth far ahead of the appreciation of it by the people as a whole who make the law, and the peoples' representatives cannot rise above them. Laws must be sustained by the people as a whole. The people look at things with all the error and inconsistency of the public mind. The law looks toward the benefit of the public as a whole. Proceeding from that point of view, we ought to obtain the enactment of laws which prescribe certain minimum standards for every healer, for every sort and condition. All persons who heal or attempt to heal disease for pay and have offices are doing it as a business, whether they do it in the name of some church or not, and that business under the law may be regulated. In attempting to regulate healing as a business, all ought to be put on the same footing. If we could establish certain minimum requirements, and have them apply to everybody who heals, we should take a long step forward in looking after the public health, and that is the only object with which law is concerned.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

February, XIII, No. 2

1 *Experimental Studies of Intestinal Flora. W. R. Sisson, Baltimore.—p. 117.
2 Hematology of Infectious Diarrhea. C. J. Bloom, New Orleans. —p. 128.
3 *Specific Diagnosis of Tuberculous Meningitis. M. Kasahara, Kyoto, Japan.—p. 141.
4 Diabetes Mellitus in Children, Report of Two Cases. P. C. Jeans, St. Louis.—p. 145.
5 Syphilitic Disease of Thymus in Infants and Mode of Origin of Dubois Abscesses. J. Oliver, San Francisco.—p. 158.
6 Congenital Atresia of Right Auriculoventricular Orifice with Complete Absence of Tricuspid Valves. J. H. Hess, Chicago.—p. 167.
7 Anatomy, Physiology and Pathology of Childhood. J. B. Holmes, Baltimore.—p. 174.

1. **Experimental Studies of Intestinal Flora.**—These experiments were carried out by Sisson with the purpose of ascertaining the effect of various foods commonly used in infant feeding on the bacterial flora of the intestinal tract. Feeding puppies cow's milk mixtures with high percentage of sucrose or lactose did not cause characteristic changes in the intestinal flora at any level, even when a diarrhea was produced. Starvation, of twenty-four hours rendered a relative amicrobism of the small intestine.

3. **Diagnosis of Tuberculous Meningitis.**—The diagnosis of tuberculous meningitis by the focal reaction of tuberculin, which Kasahara says is simple but specific in nature, is made by him as follows: After taking out a certain quantity of cerebrospinal fluid by lumbar puncture for cytologic examination, an intradural injection of diluted tuberculin (Koch's old tuberculin) is made. After six, twelve or twenty-four hours cytologic examination is again made of the fluid, which is obtained by lumbar puncture, and a comparison is made of the cell count before and after the intradural injection. The dose of tuberculin injected into the spinal canal is from 0.01 to 0.002 mg., with which a satisfactory result can be obtained. In the preparation of the tuberculin it is well to dilute it with physiologic salt solution (from 0.5 to 1 c.c.). Among specific reactions, the most conspicuous thing is an increase in the cell count of the cerebrospinal fluid, especially that of the red cells.

American Journal of Insanity, Baltimore

January, LXXIII, No. 3

8 Psychiatric Family Studies. A. Myerson, Taunton, Mass.—p. 355.
9 Consanguinity Among Patients at Newberry State Hospital, Newberry, Michigan. M. P. Kemp, Newberry, Mich.—p. 487.
10 State Charities Laws with Suggestion for Standard Type to Cover Needs of Present Day Management and also Mental Hygiene Movement Looking to Prevention. S. D. Wilgus, Rockford, Ill.—p. 499.
11 Brain Atrophy with and without Widening of Sulci. A. E. Taft, Boston.—p. 519.
12 Korsakoff Syndrome (Toxemic Cerebropathy) in Pregnancy. C. E. Riggs, St. Paul, Minn.—p. 525.
13 Results Produced in Dementia Praecox or So-Called Endogenous Dementia by Infusion of Sodium Chlorid Solution. N. Ishida, Japan.—p. 540.

American Journal of Orthopedic Surgery, Boston

February, XV, No. 2

14 Osteochondritis Dessicans; Report of Cases. E. G. Brackett, Boston, and C. L. Hall, Washington.—p. 79.
15 *Bone and Joint Lesions; Study of Six Cases. C. F. Eikenbary, Spokane, Wash.—p. 95.
16 Scoliosis. E. G. Abbott, Portland, Me.—p. 108.
17 Experimental Tuberculosis of Muscle. L. W. Ely and J. F. Cowan, San Francisco.—p. 134.
18 Use of Radium in Mobilizing Joints Having Fibrous Ankylosis Following Tuberculous Arthritis. J. J. Nutt, New York.—p. 137.

15. **Bone and Joint Lesions.**—One of the cases cited by Eikenbary was sent in with a diagnosis of tuberculosis of the right knee following trauma. This patient died within two months' time of multiple small round cell sarcomas. Another case diagnosed as knee joint tuberculosis proved to be a small round cell sarcoma of the tibia. A third patient complained of a great deal of pain in the lumbar region and to a lesser extent down both thighs, with marked weakness in both legs and thighs, not amounting to a paralysis. The trouble began about six months previously. She had been treated for that indefinite disease, "sciatica." A history of a previous carcinoma of the breast, removed by paste, the age of the patient (55), the rapid progress of the disease, the marked wasting and flabby condition of the muscles, the extensive bone destruction without abscess formation, the confining of the destructive process to a single vertebra, led Eikenbary to make a diagnosis of secondary carcinoma of the third lumbar vertebra.

Boston Medical and Surgical Journal

February 1, CLXXVI, No. 5

19 Division of Ureter in Pelvic Operations; Report of Cases. W. P. Graves, Boston.—p. 149.
20 *Fractures of External Condyle of Humerus in Childhood, with Rotation of Condylar Fragment. J. S. Stone, Boston.—p. 151.
21 Median Patella Incision for Knee Arthrotomy. E. G. Brackett, Boston.—p. 153.
22 *Management of Operative Cases Presenting Urinary Back Pressure. A. L. Chute, Boston.—p. 155.
23 *Acute and Subacute Perforations of Stomach and Duodenum at Massachusetts General Hospital. E. P. Richardson, Boston. —p. 158.
24 Appendicitis. T. W. Harmer, Boston.—p. 165.
25 Laboratory Aid in Diagnosis of Scarlet Fever. D. M. Lewis, New Haven, Conn.—p. 170.
26 Cancer Occurring in Acid Parts of Body. A. L. Benedict, Buffalo. —p. 172.
27 Improved Venipuncture Needle. G. G. Fernald, Concord.—p. 173.

20. **Fractures of External Condyle of Humerus; with Rotation of Fragment.**—Stone advises that open reduction be done in these cases within the first few hours or else after a sufficient interval for the swelling and ecchymosis to have subsided. The treatment demanded is open incision, exposure of the fragment, removal of the clot and any fibrous tissue which may occupy the space from which the fragment came, and then with a blunt dissector the prying of the fragment into place in its normal position.

22. **Operative Cases Presenting Urinary Back Pressure.**—It is Chute's firm belief that the mortality in conditions attended with urinary back pressure, especially in prostatectomy, depends on the condition of the kidneys more than on the technic of the operation; that much can be done by careful preparation and after-care to determine the postoperative result in these cases. Chute makes it a rule in the care of prostatics with a considerable residual and consequent urinary back pressure, to open the bladder under local novocain anesthesia. This is done to rid the kidneys of the embarrassment of urinary back pressure and to minimize, so far as possible, the chances of renal infection from an infected bladder. The enucleation of the prostate, which is done at a later date, is always carried out under spinal anesthesia in the bad cases.

23. **Acute and Subacute Perforations of Stomach and Duodenum.**—Of ninety perforations in eighty-nine patients treated by operation, thirty-two died, a general mortality of 35.5 per cent. Including fourteen patients dying without operation, the total mortality of the cases admitted is 44.2 per cent. Eight patients, all of whom recovered, showed a more or less local abscess at the time of perforation. Forty-eight duodenal and thirty-four gastric, showed a diffuse peritonitis at the time of operation. Of the duodenal cases, fifteen patients died, a mortality of 31 per cent.; of the gastric, seventeen died, a mortality of 50 per cent. From 1896 through 1905, inclusive, the gastric cases were eleven in number, of which seven patients died and four recovered, a mortality of 64 per cent. The duodenal cases were seven in number, of which five patients died and two recovered, a mortality of 77 per cent. From 1906 to 1915, inclusive, there were twenty-three gastric cases, of which ten patients died and thirteen recovered, a mortality of 43.5 per cent. The number of duodenal cases was forty-one, of which ten patients died and thirty-one recovered, a mortality of 24.4 per cent. The principal cause of death was peritonitis.

Bulletin of Johns Hopkins Hospital, Baltimore

January, XXVIII, No. 311

28 *Relation of Tonsillar and Nasopharyngeal Infections to General Systemic Disorders. S. J. Crowe, S. S. Watkins and A. S. Rothholz, Baltimore.—p. 1.
29 Legend of Salerno. How Constantine the African Brought Art of Medicine to Christians. C. Singer, England.—p. 64.

28. **Relation of Tonsillar and Nasopharyngeal Infections to General Disorders.**—This report is based on the study of 1,000 tonsillectomies. A histologic examination of the tonsils and adenoids removed at operation was made in every case. One hundred and thirty-nine were from colored patients, and of these eleven, or 7.9 per cent., were tuberculous. There were 861 white patients, and of these thirty-five, or 4 per cent., were tuberculous. Ninety-one patients had an infectious type of arthritis. Of this number the authors have been able to follow up and note the ultimate result of the joint condition in thirty-one. In twenty-four the joints are normal. Four cases are classified as improved because the patients are now able to walk without pain. Two are not improved, and one is in worse condition than at the time of the operation. In four cases of myalgia the trouble had entirely disappeared. Only two of nine cases of rheumatoid arthritis are improved. Five are much worse. The conclusion drawn from this group of cases is that only in very exceptional circumstances should any one subject a patient with "rheumatoid arthritis" to an operation for the removal of the tonsils. Removal of the tonsils and adenoids in cases of rheumatic fever eliminates one of the portals of infection. Four of twenty-five cases have had a recurrence. Removal of the tonsils and adenoids is not a very satisfactory therapeutic or prophylactic measure in chorea. Of the twenty-three cases of Sydenham's chorea in which the tonsils and adenoids were removed, eight have had a recurrence. A chronic enlargement of the deep cervical glands at the angle of the jaw, together with the past history of the patient, was the indication for tonsillectomy in 541 of the 1,000 cases. In twenty-one of 366 cases reexamined, the glands, subsequent to the operation, gradually assumed the characteristics of a tuberculous infection. In thirty-six additional cases the glands did not subside, and are treated as incipient tuberculous glands.

Bulletin of Lying-In Hospital of City of New York

January, XI, No. 1

30 *Fetal Infection as Cause of Stillbirth and Sundry Obstetric Theories. J. B. De Lee, Chicago.—p. 1.
31 *Posture in Obstetrics. J. W. Markoe, New York.—p. 11.
32 *Acidosis as Factor in Toxemias of Pregnancy. J. R. Losee and D. D. Van Slyke, New York.—p. 26.
33 Conservative Treatment of Eclampsia. G. W. Kosmak, New York.—p. 33.
34 Ureteral Fistula Following Labor. Left Ureter Transplanted into Bladder. J. W. Markoe, New York.—p. 41.
35 Source of Danger in Elective Cesarean Section Before Labor and with Undilated Cervix. J. A. Harrar, New York.—p. 46.
36 *Conservative Treatment of Eclampsia. R. McPherson, New York.—p. 48.
37 *Is Operation of Cesarean Section Indicated in Delivery of Breech Presentation? R. McPherson, New York.—p. 50.
38 *Case of Bilateral Congenital Glaucoma. C. E. McDonald and M. K. Smith, New York.—p. 53.
39 *Parallel Study of Blood Pressure, Urine and Edema in Pregnancy. M. Rosensohn, New York.—p. 55.
40 Case of Intussusception in Four Day Old Infant. K. B. Steele, New York.—p. 56.
41 Report of Work Done in Babies' Class from Oct. 1, 1915, to Sept. 30, 1916. E. L. Coolidge, New York.—p. 58.
42 Medical Statistics of Lying-In Hospital from Oct. 1, 1915, to Sept. 30, 1916. R. McPherson, New York.—p. 60.

30. **Fetal Infection.**—The following problem is suggested by De Lee: May not pregnancy develop the affinities of the bacteria normally present in the body, or that are casual guests, so that they attack the various vulnerable organs, including the fetus? That the obstetrician must be prepared to accept the theory of special affinities of bacteria De Lee is convinced. Two years ago he saw several cases of pemphigus simplex, and at the same time and within the four months succeeding there was a small epidemic of breast abscesses, fifteen in the mothers and babies. A simple *Staphylococcus albus* was all that was found and injection of the culture into rabbits did not produce in them the customary fatal septicemia.

31. See THE JOURNAL, Oct. 7, 1916, p. 1066.

32. **Acidosis in Toxemias of Pregnancy.**—The authors are convinced that the toxemias of pregnancy can be attributed neither to failure in diaminization of the amino-acids, nor to the moderate degree of acidosis observed. The nature of the toxin or toxins therefore remains unknown. The nature of the functional disturbances which cause the abnormal nitrogen metabolism observed also still awaits a satisfactorily conclusive explanation. Nevertheless, the constancy of the low urea ratios in the urine in eclampsia, and of high ammonia in pernicious vomiting, lends decided support to the opinion of Ewing and Wolf, that the nitrogen distribution of the urine, considered "in connection with all the data in the case," should assist in diagnosing the toxemias of pregnancy, and in differentiating them from conditions such as nephritis and transitory gastric disorders. The only eclamptic urines which showed more than 70 per cent. of urea nitrogen were those obtained one or more days postpartum. The ammonia was often higher than the average in normal individuals, but the abnormality is less striking than that of the urea. All the cases of pernicious vomiting showed strikingly high ammonia percentages. In five cases of nontoxic pregnancy the nitrogen ratios were normal.

36. **Conservative Treatment of Eclampsia.**—Of thirty-five cases of convulsive toxemia, thirty-three mothers were discharged well, fifteen children were born alive and were discharged well, fourteen children were stillborn and six children died within a few hours after birth. This leaves a mortality in the series of 8.6 per cent. and a stillbirth mortality of 40 per cent. All of these cases were true convulsive toxemias, having had one or more convulsions before admission, and all were treated in approximately the same way. Immediately on entrance to the hospital, the patient's blood pressure is taken, a catheterized specimen of urine obtained and she is put into an isolation room which is darkened and as much quiet as possible obtained. She is then given by hypodermatic injection ½ grain morphin sulphate, her stomach is washed out, 2 ounces of castor oil is poured down the tube at the end of the lavage and she is given a colonic irrigation of 5 gallons of 5 per cent. glucose solution. If the blood pressure is over 175 systolic, phlebotomy is done and a sufficient quantity of blood is extracted to bring the pressure down to 150. The patient is now kept quiet and ¼ grain morphin administered every hour until the respirations drop to eight per minute. At this time convulsions have usually ceased, the patient will have fallen into labor, and, as has happened in practically all the cases, will deliver herself in a short time. Of the cases included, twenty-three were spontaneous deliveries, nine were delivered by low forceps, two by version and breech extraction, one breech presentation and delivery. All the patients in whom a fetal heart was heard on admission were delivered of living children, and in none of these were there any signs whatever of the morphin which had been administered to the mother.

37. Also published in the *American Journal of Obstetrics and Diseases of Women and Children*, November, 1916.

38. **Bilateral Congenital Glaucoma.**—This is said to be the only case appearing thus far in the records of about 100,000 confinements in the service of the Lying-In Hospital.

39. **Study of Blood Pressure, Urine and Edema in Pregnancy.**—Rosensohn concludes from his study that the edema seen in pregnancy does not necessarily imply the existence of nephritis. It is apparently independent of the blood pressure. The average systolic pressure in primiparae in the later months of pregnancy is slightly below normal. The existence of hypertension does not necessarily imply the development of toxemia.

California State Journal of Medicine, San Francisco

February, XV, No. 2

43 Social Insurance. M. R. Gibbons, San Francisco.—p. 45.
44 Operative Treatment of Vertebral Tuberculosis. E. Jones, Los Angeles.—p. 50.
45 Physician's Responsibility to Life Insurance. P. K. Brown, San Francisco.—p. 51.
46 Use of Pure Phenol in Selected Cases of Chronic Middle Ear Suppuration. G. W. Walker, Stockton.—p. 54.
47 Roentgenographic Diagnosis of Hydronephrosis. M. Krotoszyner, San Francisco.—p. 58.

Georgia Medical Association Journal, Augusta

January, VI, No. 9

48 *Acute Torsion of Ovary in Young Girls; Report of Two Cases. H. S. Munroe, Columbus.—p. 169.
49 Chronic Affections of Knee. F. G. Hodgson, Atlanta.—p. 171.
50 Acute Dilatation of Stomach; Report of Two Cases. J. T. Rogers, Savannah.—p. 174.
51 Migraine. J. G. Dean, Dawson.—p. 176.
52 Nervous Manifestations in Bright's Disease. L. M. Gaines, Atlanta. —p. 180.
53 Pituitary Extract. J. W. Palmer, Ailey.—p. 185.
54 New Dietetic Treatment as Indicated from Simple Culture of Stools in Infectious Diarrhea of Infancy and Early Childhood. W. A. Mulherin, Augusta.—p. 189.

48. Abstracted in THE JOURNAL, May 6, 1916, p. 1491.

Journal of Cancer Research, Baltimore

January, II, No. 1

55 *Primary Spontaneous Sarcoma in Mice. M. Slye, H. F. Holmes and H. G. Wells, Chicago.—p. 1.
56 Spontaneous Tumors of Rat. F. D. Bullock and G. L. Rohdenburg, New York.—p. 39.
57 Some Diagnostic Reactions for Malignant Tumors. A. F. Coca, New York.—p. 61.
58 Case of Epithelioma Developing in Skin Ulcer in Pellagra. K. M. Lynch, Charleston, S. C.—p. 77.
59 *Identification of Cells in Myelomas by Means of Indol-Phenol Blue Synthesis. J. Forman and J. H. Warren, Cincinnati. —p. 79.
60 *Palliative Treatment of Inoperable Carcinoma of Cervix by Means of Radium. R. T. Frank, New York.—p. 85.
61 Spontaneous Epithelioma of Fowl. A. I. Baird, New York. —p. 103.

55. **Primary Spontaneous Sarcoma in Mice.**—In a series of 12,000 necropsies on the bodies of mice there were found eighty-seven mice with neoplasms meeting all the criteria of sarcoma. These do not include lymphosarcomas, mediastinal tumors or tumors of the testicle, suprarenal, ovaries and kidneys, of "mesothelioma" character. Spindle-cell sarcomas constitute over half the tumors, there being forty-seven of all types, not including three oval-cell sarcomas, three perivascular sarcomas and two alveolar sarcomas. There were twelve osteoid sarcomas and ten polymorphous cell and ten round cell sarcomas. Metastasis was observed in twenty-three cases, or 26.4 per cent., the osteoid sarcomas leading with 75 per cent. metastasis occurred in only 13 per cent. of the spindle-cell sarcomas. Lungs, liver and lymph nodes showed most of the metastases. In all respects these sarcomas of mice correspond with the sarcomas of men, although the authors found no examples of melanosarcoma, multiple myelomas, or myeloid sarcoma. In at least eleven cases the sarcomas definitely arose at the site of previous injuries. In a few instances there seemed to be two distinct primary sarcomas in the same mouse, and there were three instances in which the growths suggested a mixture of sarcomatous and carcinomatous elements. About half the sarcomas arose in the subcutaneous tissues, apparently from the mammary gland in most cases; and next in frequency from the osseous tissues. Two cases of sarcoma of the uterus were observed, the only uterine tumors of any kind observed in all the necropsies. Twenty of the sarcoma mice also had other independent tumors, lung tumors being most numerous. Two mammary gland tumors closely resembled in structure the embryonal adenosarcoma of the kidney of man. The influence of inheritance on sarcoma incidence was marked.

59. **Identification of Cells in Myelomas.**—The specimen on which the study made by Forman and Warren is based consists of a tumor involving the lumbar vertebrae. In its growth it has replaced the bodies of these vertebrae, leaving only a shell of bone. The blood examination made on the patient about two weeks before his death, showed that there was not a leukemic state present in the blood at that time. The indol-phenol blue synthesis depends on the fact that alpha naphthol and dimethylparaphenylendiamin combined with two atoms of oxygen forms indol-phenol blue. A very large majority of the tumor cells give the oxydase reaction. These cells are definitely placed in the myeloid group.

60. **Radium in Inoperable Carcinoma of Cervix.**—In every case so far treated by Frank a distinct amelioration of pain was observed within two weeks after the second radiation. Coincidentally, the bleeding diminished or disappeared, and the foul discharge became odorless and serous in character. In the earlier cases treated, because of insufficient filtration, very annoying rectal and vesical tenesmus was complained of, usually most marked on the third and tenth day after the beginning of the treatment. Severer rectal tenesmus developed in these cases as late as the third month. Since the practice of distending the vagina with gauze has been adopted, these unpleasant symptoms have either not appeared or have been very mild in character. The minimum quantity or radium substance needed is 50 gm. "Borderline" cases or operable cases, Frank says, should be submitted to operation after a short preliminary course of radiation. Good primary results may then be expected from simple total hysterectomy. Patients operated on should be subjected to postoperative, prophylactic radiation, beginning not later than four weeks after operation. Whether the final results will prove that radium can give a permanent cure of cancer Frank believes is a mooted question. Judging from the limited penetrating power of the rays and the variation of resistance of different cancers, it seems probable that numerous disappointments will occur, and that in many cases positive harm will be done by enthusiasts who refuse to submit operable cancers to surgical operation.

Journal of Infectious Diseases, Chicago

February, XX, No. 2

62 *Virulence of Diphtheria Bacilli from Diphtheria Patients and Diptheria Carriers. G. H. Weaver, Chicago.—p. 125.
63 *Alleged Detoxicating Power of Thyroid. H. R. Basinger, Chicago. —p. 131.
64 Epidemic of Acute Diarrhea Approaching in Some Cases Mild Dysentery. W. Sadler and R. F. Kelso, Quebec, Canada.—p. 140.
65 Passive Transference of Nonspecific Antibodies. P. K. Olitsky and B. S. Denzer, New York.—p. 145.
66 Comparative Study of Bacillus Anthracis-Symptomatici and Allied Organisms with Respect to Gas-Production. L. C. Todd, Detroit. —p. 150.
67 Transmission of Pneumonic and Septicemic Plague Among Marmots. F. Eberson and W. L. Teh, Japan.—p. 170.
68 Plague Poisons and Virulence. F. Eberson, Harbin, Manchuria. —p. 180.
69 *Effect of Various Chemical Substances on Hemolytic Reaction. N. P. Sherwood, Lawrence, Kans.—p. 185.
70 *Blood Culture Studies on Typhus Exanthematicus in Serbia, Bulgaria and Russia. G. Baehr and H. Plotz, New York.—p. 201.
71 Leukopenia and Leukocytosis in Rabbits. C. W. Wells, Chicago. —p. 219.

62. **Virulence of Diphtheria Bacilli.**—Diphtheria bacilli from patients with diphtheria and from carriers who have been in contact with such patients, Weaver found, are practically always virulent. The bacilli in such cases usually remain virulent up to the time of disappearance, even though a long time has elapsed. Weaver urges that carriers should be kept in isolation until the bacilli have been gotten rid of, or until the strains cultivated have been proved to be nonvirulent, and that cultures from the nose, as well as from the throat, should be made in all suspected cases.

63. **Detoxicating Power of Thyroid.**—Basinger found that the thyroid has no detoxicating properties that can be demonstrated by the injection of diphtheria and tetanus toxin directly into the thyroid.

69. **Effect of Chemical Substances on Hemolysis.**—In general, Sherwood says, the zone of concentrations fixing complement very nearly approximates, and in many cases coincides with, the weakest dilutions producing hemolysis, and may extend down to include a few concentrations which are unable to produce hemolysis. This suggests the possibility that the power of various organic compounds to deflect or fix complement may be a factor favoring infection or maintaining a chronic infection. Further, that some organic compounds might occasionally play some rôle in either inhibiting or intensifying the anaphylactic shock, since complement seems to be involved in this reaction.

70. **Bacteriology of Typhus in Balkans.**—The bacteriologic studies carried out by Baehr and Plotz in the Balkans and Russia on sixty-four individuals with typhus confirmed the observation previously made in New York, that *B. typhi-exanthematici* is present in the blood during the febrile period of the disease. Up to date, therefore, this organism has been found in pure culture in the blood of typhus patients in the United States, Mexico, Serbia, Bulgaria, Austria and Russia.

Journal of Medical Research, Boston

January, XXXV, No. 3

72 *Crystalline Hyalin. E. W. Goodpasture, Boston.—p. 259.
73 *Presence in Blood of Bacteria of Secondary Infection in Pulmonary Tuberculosis. F. Hall and S. C. Harvey.—p. 265.
74 *Isolation of Bacteria of Secondary Infection from Sputum in Pulmonary Tuberculosis. S. C. Harvey.—p. 279.
75 *Effect on Jejunal Mucosa of Exposure to Gastric Juice. F. C. Mann, Rochester, Minn.—p. 289.
76 Path of Involvement in Ascending Infection of Urinary Tract. D. N. Eisendrath and O. T. Schultz, Chicago.—p. 295.
77 Adenoma Formation in Stomach of Rabbits by Feeding with Lanolin. Y. Kon, Tokyo, Japan.—p. 337.
78 Production of Kidney Lesions with Staphylococcus Aureus Toxins. R. H. Major, Rosedale, Kan.—p. 349.
79 Studies on Paratyphoid Enteritidis Group. Some Cultural Characteristics and Their Relation to Host Origin. C. Krumwiede, Jr., J. S. Pratt and L. A. Kohn, New York.—p. 357.
80 Reaction of Cerebrospinal Fluid in Psychoses. P. G. Weston, Warren, Pa.—p. 367.
81 Studies on Staphylococcus Pyogenes Aureus, Albus and Citreus and on Micrococcus Tetragenus and M. Catarrhalis. I. C. Walker and J. Adkinson, Boston.—p. 373.
82 *Studies of Diphtheroid Organism Isolated from Sputum of Patients with Bronchial Asthma. I. C. Walker and J. Adkinson, Boston.—p. 391.
83 Studies on Paratyphoid Enteriditis, Typhoid, Dysentery and Colon Groups. H. Weiss and J. L. Rice, New York.—p. 403.
84 Aortic Aneurysms in Dogs; Report of Six Cases. S. R. Haythorn, Pittsburgh and A. H. Ryan, Boston.—p. 411.
85 Classification of Parasitic Amebae of Man. C. F. Craig, El Paso, Texas.—p. 425.
86 Comparative Study of Bacterium Pullorum (Rettger) and Bacterium Sanguinarium (Moore). L. F. Rettger and S. A. Koser, New Haven, Conn.—p. 443.
87 Argyrophilic Granules of Sympathetic Nervous System. A. Myerson, Taunton, Mass.—p. 459.
88 Fate of Micrococcus Aureus Introduced into Blood Stream of Dogs. C. J. Bartlett and Y. Ozaki, New Haven, Conn.—p. 465.
89 *Sensitization of Patients with Bronchial Asthma to Bacterial Proteins as Demonstrated by Skin Reactions and Methods Employed in Preparation of these Proteins. I. C. Walker, Boston.— p. 487.
90 Sensitization of Patients with Bronchial Asthma to Different Proteins Found in Dandruff of Horse and in Hair of Cat and Dog and to Serums of These Animals. I. C. Walker, Boston.—p. 497.
91 Sensitization of Patients with Bronchial Asthma to Different Proteins in Wheat and to Whole Protein of Wheat, Corn, Rice, Barley, Rye and Oat. I. C. Walker, Boston.—p. 509.

72. **Crystalline Hyalin.**—Epithelial hyalin, plasma cell, prostatic and crystalline nuclear hyalin are regarded by Goodpasture as a definite and perhaps identical chemical substance. He believes that the view that its presence signifies degeneration is probably correct.

73. **Presence of Secondary Bacteria in Tuberculosis.**—Hall and Harvey's results show that severe pulmonary tuberculosis, even with secondary infection, is rarely accompanied by a bacteriemia. Using the same technic, they were unable to confirm the positive findings of previous writers.

74. **Isolation of Secondary Bacteria from Sputum in Tuberculosis.**—In order to obviate the difficulties usually encountered in attempting to isolate organisms from the sputum the following procedures were adopted by Harvey: First, the mouth and nasopharynx are implanted with a nonpathogenic bacterium, the presence of which in the sputum, after washing, indicates that mouth contamination has not been removed. Second, the sputum mass is washed in a continuous stream of sterile salt solution until nothing is left but a small portion of the fibrin mesh which can hardly have origin from anything but an ulcerated or inflamed mucosa. Third, a portion of the fibrin mesh, which is cultured, is also stained for acid-fast bacilli, the presence of which identifies it as a derivative of the tuberculous process. The *Streptococcus nonhemolyticus* is the most frequent pyogenic organism found in association with pulmonary tuberculosis.

75. **Effect on Jejunal Mucosa of Gastric Juice.**—The results of the investigation reported by Mann are based on fourteen experiments. The specimens were obtained after operation. He says that when an isolated portion of the jejunum is transposed into the wall of the stomach the following changes may be noted: There may be slight thickening of both mucosa and muscularis. The mucus-producing cells may be increased in both number and size. There may be an active cell proliferation. In several of the experiments no change in the transposed mucosa was noticed. Ulceration of the mucosa occurred in one experiment, and in this case a more absorbable suture was found in the base of the ulcer. The gastric juice is probably not the primary cause of gastrojejunal ulcer. The function of the transplant as tested by its power to absorb fat was practically normal.

82. **Diphtheroid Organism in Sputum of Asthma Patients.**—A bacteriologic examination of the sputum was made by Walker and Adkinson in forty-five cases of bronchial asthma. In thirty instances apparently the same type of diphtheroid organism was isolated. This type is extremely polymorphous in its growth and much care is required at times to differentiate between it and other organisms, such as those belonging to the staphylococcus, streptococcus and pneumococcus groups. In the litmus sugar serum waters this type of diphtheroid organism coagulated regularly all of the sugars which were tried (dextrose, levulose, saccharose, dextrin, lactose, galactose, maltose, inulin, salicin, and raffinose and litmus milk). Mannite was unchanged by one half of the strains but was coagulated by the other half.

89. **Sensitization of Asthma Patients to Bacterial Proteins.**—The bacterial proteins were tested by Walker on 100 individuals, of whom seventy had typical attacks of paroxysmal bronchial asthma throughout the year, fourteen had seasonal attacks of paroxysmal bronchial asthma, six had either cardiac or renal disease, but had paroxysmal attacks, simulating bronchial asthma, seven probably had true bronchial asthma though their attacks were not typical, and three had very questionable attacks of bronchial asthma. The proteins were prepared only from the bacteria usually found in the respiratory tract; the *S. pyogenes-aureus, albus* and *citreus*, the *M. tetragenus* and *catarrhalis*, the *S. viridans-hemolyticus* and *nonhemolyticus*, and a type of diphtheroid bacillus usually found in the sputum of asthmatic patients were used. Ninety-two patients were tested with the protein from *S. pyogenes-albus:* six gave a positive reaction, eight gave a questionable one and seventy-eight gave no reaction at all. Sixty-eight patients were tested with the protein from *S. pyogenes-citreus:* two were positive, one was questionable, and sixty-five were negative. Eighty-one patients were tested with the protein from each of the two types of micrococcus. One patient gave a positive reaction to the protein from *M. tetragenus* and two patients to the protein from *M. catarrhalis.*

Of the patients tested with the streptococcus group, one gave a positive reaction to *S. hemolyticus*, but no positive reactions were obtained with the protein from *S. viridans* or from *S. nonhemolyticus.* Fifty-five patients were tested with the protein from an unidentified type of diphtheroid organism and sixty-eight from an identified type of diphtheroid organism; the latter type was usually found in the sputum of asthmatic patients. One patient reacted positively to each type of organism; three patients reacted questionably to each type of organism; fifty-one patients were negative to the unidentified type of diphtheroid organism and sixty-four were negative to the identified type of diphtheroid organism. An alcohol-ether preparation of bacterial proteins gave the most satisfactory results of any used.

Kentucky Medical Journal, Bowling Green

February, XV, No. 2

92 Diagnostic Points General Practitioner Should Know About the Ear. S. Cohn, Fulton.—p. 55.
93 Diagnostic Points General Practitioner Should Know About the Throat. H. G. Reynolds, Paducah.—p. 57.
94 Diagnostic Points General Practitioner Should Know About the Nose. G. C. Hall, Louisville.—p. 58.
95 *Tuberculosis; Its Relation to Life Insurance. W. R. Thompson, Mount Sterling.—p. 66.
96 Relation of Discharging Ear to Life Insurance. A. O. Pfingst, Louisville.—p. 68.
97 Rational Management of Typhoid. S. W. Crowe, Centertown.—p. 75.

95. Abstracted in THE JOURNAL, Dec. 2, 1916, p. 1692.

Maine Medical Association Journal, Portland

January, VII, No. 6

98 Eclampsia and Misfit Labor; Their Modern Management. S. P. Warren, Portland.—p. 173.
99 Medical Inertia and Vacation. J. A. Spalding, Portland.—p. 189.

Medical Record, New York

February 3, XCI, No. 5

100 Roentgenologic Diagnosis of Cerebral Lesions. C. W. Perkins, New York.—p. 177.
101 Case of Myatonia Congenita. M. Neustaedter, New York.—p. 181.
102 Wounds Caused by Modern Projectiles. B. F. Morowitz, New York.—p. 183.
103 Oral Infection and Its Relation to Arthritis. H. A. Goldberg, New York.—p. 185.
104 Modern Diagnosis and Treatment of Syphilis. F. W. Smith, New York.—p. 186.
105 Bacteriologic and Experimental Researches on Etiology of Sprue. H. Dold, Shanghai, China.—p. 191.
106 Epilepsy. L. Grimberg, New York.—p. 193.
107 Proctitis; Its Widespread Prevalence Not Recognized. A. L. Sherman, West Orange, N. J.—p. 196.

Military Surgeon, Washington, D. C.

February, XL, No. 2

108 *Most Practicable Plan for Organization, Training and Utilization of Medical Officers of Medical Reserve Corps of United States Army and Navy, and of Medical Officers of Officers' Reserve Corps of United States Army, in Peace and War. M. Ashford.—p. 123.
109 Field Maneuvers of Divisional Sanitary Troops, Leon Springs, Texas, November, 1916. R. C. Turck.—p. 156.
110 Effect of Marching on Rates for Noneficiency of Newly Raised Troops. E. L. Munson.—p. 171.
111 Sanitation of Public Buildings. J. R. Hurley.—p. 183.
112 Recruiting for Military Service. F. T. Woodbury.—p. 195.
113 Demography in so Far as it Relates to Vital Statistics of Armies. W. P. Chamberlain.—p. 204.

108. **Organization of Medical Reserve Officers.**—It is specifically proposed by Ashford that the government make for the present an optional offer to all medical schools recognized as reputable by the American Medical Association. This offer is to be a choice of compulsory or optional course in sanitary tactics for their student body. Under this offer any medical schools which so elect may establish a course in sanitary tactics for their student body under the direct patronage of the government. The faculty of the individual school shall itself elect whether this course is compulsory for attainment of a medical degree or purely an optional one. If the medical school shall elect to make this course a prerequisite for the award of a diploma, the government will put this school in Class 1. If the medical school shall elect to make this course optional, the government will place this school in Class 2. The training of physicians, who, after graduation, voluntarily elect to continue their affiliation with the Medical Reserve Corps of army or navy, should be systematic, tend toward organization as well as education, and lead to classification of all available physicians according to their special abilities and special line of professional endeavor.

The course proposed here is a four-year correspondence course to be conducted by the surgeon-general of the branch of reserve activity elected, and also in annual summer maneuver camps for a period of not less than fifteen days. At the termination of the second year of the correspondence course those who have complied with foregoing requirements and whose papers in the correspondence course average up to a standard set by the surgeon-general, will be invited to take an examination in the subjects which they have studied. The successful candidates will be awarded a certificate of eligibility for appointment as captain in the medical section of the Officers' Reserve Corps of the army, or as passed assistant surgeons of the Medical Reserve Corps of the navy. At the termination of the fourth year of the correspondence course and the fourth annual instruction camp or cruise, medical reserve officers holding the eligibility certificate for captain will be invited to participate in an examination in sanitary tactics, and, if found qualified, will be awarded certificates of eligibility for appointment to the grade of major in the reserve corps of the army, or surgeon in the reserve corps of the navy.

The medical reserve officer who desires advanced study in sanitary tactics, will be able to gratify his taste by applying to the surgeon-general of his service for authority to take the postgraduate correspondence course. This will be a one-year course for graduates of the foregoing courses, and will be purely voluntary. It will consist chiefly of problems in sanitary tactics, map and visibility problems. Participants who successfully complete this course will be given credit on their efficiency records. These thoughts are amplified fully by Ashford in his paper.

Modern Hospital, St. Louis

February, VIII, No. 2

114 New Building for Hospital for Deformities and Joint Diseases. M. Craiger and M. G. Heidelberg, New York.—p. 83.
115 Solving Problem of High Cost of Living in Hospital. J. W. Fowler, Louisville, Ky.—p. 90.
116 Gelatin and Jelly Powders. J. P. Street, New Haven, Conn.—p. 93.
117 Work of Detroit Receiving Hospital. J. Dretzka, Detroit.—p. 96.
118 New Reception Building of Hospital for Insane, Brockville, Ont. J. C. Mitchell, Brockville, Ont.—p. 97.
119 Hospital Survey of Community. J. J. Weber, New York.—p. 99.
120 Small Community Hospital that Meets a Need. S. A. Lutgen, Wayne, Nebr.—p. 101.
121 Sociologic Aspect of Treatment of Alcoholism. C. B. Towns, New York.—p. 103.
122 Emergency Hospitals for Industrial Plants. L. L. Watters, New York.—p. 107.
123 Small Community Hospital—Organization. J. A. Hornsby, Chicago.—p. 110.
124 What the Chaplain Should Contribute to Team Work. F. W. Tracy, Rochester, Minn.—p. 122.

New Orleans Medical and Surgical Journal

February, LXIX, No. 8

125 Military Surgery from Personal Experiences in Present European War. K. W. Ney, New Orleans.—p. 546.
126 *Diagnosis of "Three-Days Fever" (Pappataci Fever). G. C. Shattuck, Boston.—p. 559.
127 Epidemic of Dengue in Porto Rico, 1915. W. W. King, Porto Rico.—p. 564.
128 Clinical Types of Dengue in Porto Rico Epidemic of 1915. W. W. King, Porto Rico.—p. 572.

126. **Diagnosis of Three-Day Fever.**—The duration of the pappataci or sand-fly fever varies from one to five, and perhaps to seven days; there is usually a leukopenia with decrease of the polymorphonuclear cells, and the pulse rate seldom exceeds 80, even with temperatures of 103. The onset is sudden, with chilliness, nausea, headache, heaviness and discomfort about the eyes, lumbar pain and stiffness of the muscles of the legs, and somnolence. On the next day there is fever of 101 or 102. The face is flushed, the conjunctiva injected, the tongue coated, and there is stiffness and pain in the back and calves of the legs, and no rash. The patient complains of frontal headache and is mentally depressed. The leukopenia is slight. The diagnosis of pappataci depends on presence of the usual signs and symptoms, the existence of other cases, the occurrence in summer in a region where the sand-fly is found, and the exclusion of other diseases by examination of blood films, negative serum reactions and sterile blood cultures.

New York Medical Journal

February 3, CV, No. 5

129 Diagnosis and Treatment of Gastric and Duodenal Ulcer. M. Einhorn, New York.—p. 193.
130 Ultraviolet Rays in Skin Diseases. F. Wise, New York.—p. 196.
131 Roentgen Ray in Diagnosis of Pulmonary Tuberculosis. J. Daland, Philadelphia.—p. 199.
132 Blindness Relieved by New Method of Treatment; Report of Case. W. H. Bates, New York.—p. 200.
133 Stones in Urinary Tract. E. G. Ballenger and O. F. Elder, Atlanta, Ga.—p. 203.
134 Syphilis of Genito-Urinary Organs. S. W. Schapira and J. Wittenberg, New York.—p. 206.
135 Orthopedic Treatment of Infantile Paralysis. S. Kleinberg, New York.—p. 207.
136 Undifferentiated Excitement. J. A. Jackson and M. Abramovitz, Philadelphia.—p. 211.
137 Studies of Eye Ground Changes in Cerebral Spastic Paralysis. J. A. Kearney, New York.—p. 214.
138 Therapeutics of Olive Oil. E. J. Asnis, Philadelphia.—p. 215.

Ohio State Medical Journal, Columbus

February, XIII, No. 2

139 Obstructions of Ureter. H. L. Sanford, Cleveland.—p. 79.
140 Obstructions to Urinary Flow in Bladder. H. A. Baldwin, Columbus.—p. 81.
141 Diagnosis of Conditions Interfering with Urinary Flow Anterior to Prostate. C. M. Harpster, Toledo.—p. 84.
142 *Roentgen Ray Treatment of Acne. Résumé of Fourteen Years Experience. W. I. Le Fevre, Cleveland.—p. 87.
143 Control of Diphtheria. R. G. Perkins, Cleveland.—p. 89.
144 Epilepsy. G. G. Kineon, Gallipolis.—p. 91.

142. **Roentgen-Ray Treatment of Acne.**—During the past fourteen years several hundred cases of acne have been treated by Le Fevre. The majority of these patients have been cured. Practically all were improved, while a few have not responded well. Le Fevre feels that the results justify the care, the time and the expense required for this method of treatment, and heartily recommends it as the method of choice in the treatment of acne.

Public Health Journal, Toronto

January, VIII, No. 1

145 Principles Involved in Notification of Tuberculosis. P. H. Bryce, Ottawa.—p. 1.
146 Sanitation of Railway Cars. T. R. Crowder, Chicago.—p. 6.
147 Causation of Dental Decay. T. E. Constant.—p. 27.
148 War and Incidence of Insanity. W. Graham.—p. 30.

Rhode Island Medical Journal, Providence

February, I, No. 2

149 Obstetric Writers of the United States. H. G. Partridge, Providence.—p. 29.
150 Prevention of Disease. L. F. C. Garvin, Lonsdale.—p. 33.
151 Modern Roenten Ray Therapy. I. Gerber, Providence.—p. 36.

Southwestern Medicine, Las Cruces, N. M.

January, I, No. 1

152 Alkalinization; Its Uses and Index. H. A. Miller, Clovis.—p. 10.
153 Roentgenology in Diagnosis of Chest Diseases. W. W. Watkins, Phoenix, Ariz.—p. 14.
154 Diagnosis of Gastro-Intestinal Lesions by Means of Roentgen Ray. W. B. Bowman, Los Angeles.—p. 21.
155 Some Theories and Few Facts about Headache. G. Werley, El Paso, Texas.—p. 29.
156 Headache in Diagnosis of Brain Tumor and Abscess. H. Crouse, El Paso, Texas.—p. 34.
157 Spinal Puncture in Relation to Headache. M. B. Wesson, El Paso, Texas.—p. 39.
158 Headache in Eye, Ear, Nose and Throat Work. E. R. Carpenter, El Paso, Texas.—p. 44.
159 Pioneer Practice in Southwest. H. Thompson, El Paso, Texas. —p. 46.
160 Retroversion; Its Clinical Pathology. A. C. Carlson, Jerome, Ariz.—p. 49.
161 Treatment of Pleurisy with Effusion. A. G. Shortle, Albuquerque. —p. 53.
162 Gunshot Wound of Abdomen. J. Vance, El Paso, Texas.—p. 57.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Journal of Tropical Medicine and Hygiene, London

January 15, XX, No. 2

1 Occurrence of Trichonocardiasis in Natives of Gold Coast. A. Ingram and J. W. S. Macfie.—p. 13.

Medical Journal of Australia, Sydney

December 23, 1916, II, No. 26

2 Mosquito and Insect Borne Disease. J. C. Verco.—p. 533.
3 Case of Atrophy of Choroid in Boy of Fifteen. L. G. Davidson. —p. 540.

Sei-I-Kwai Medical Journal, Tokyo

January, XXXVI, No. 1

4 Investigation of Diabetes Mellitus Among Japanese. S. Iwai. —p. 1.

Archives de Médecine des Enfants, Paris

December, 1916, XIX, No. 12, pp. 617-685

5 *Eczema in Children. J. Comby.—p. 617.
6 Infant Welfare Work in Brazil. (La division de protection du premier age du département sanitaire de l'état de Sao-Paulo.) C. Ferreira.—p. 626.
7 The Regional Tuberculin Skin Reaction. S. Pisani.—p. 632.
8 *Recurring Phlebitis in Domain of Inferior Vena Cava. A. Roux. —p. 636.
9 Acute Encephalitis or Serous Meningitis in an Infant. A. Roux. —p. 640.
10 Cerebrospinal Meningitis in an Infant. A. Roux.—p. 642.
11 Cerebrospinal Meningitis and Disinfection. J. Comby.—p. 644.

5. **Eczema in Children.**—Comby insists that eczema must be regarded not as an infectious disease but as a pure dyscrasia. Infection may become installed as a complication, and this is very frequent in children. It is not a factor in the pathogenesis but it may influence the prognosis unfavorably. In most children the eczema subsides before long, but the possibility must be borne in mind of some arthritic manifestation taking its place, such as asthma. In many cases, however, the eczema does not have this basis of a diathesis and it subsides radically in time under proper dieting. Even the arthritic type, persisting or recurring through months and years, may heal completely in time. The diet of the woman nursing an infant with eczema should be regulated as if the woman herself had eczema, avoiding alcohol, salted meats, acids and condiments. The diet should be vegetarian, drinking copiously of water, and the infant feedings should be spaced farther apart, at three hour intervals, with outdoor life, change of scene, change to the country or the mountains. Marfan has witnessed the subsidence of eczema in nurslings kept out of doors, at a moderate or high altitude. Comby has seen a change to the country or the seashore have the same effect, but strong winds should be avoided, and wind-blown sand particles. The bottle-fed infant should be given less fat in its milk, putting it on skimmed milk or buttermilk, or even on condensed or desiccated milk. The only way is to try first one and then the other, as it is impossible to tell which will be best for the individual child. Baths should be omitted, but the child must be kept scrupulously clean, with tepid douches, but not putting the child in the water as this macerates the epidermis, congests the skin and aggravates infantile eczema. Salves and moist dressings should also be avoided with the erythrodermia of young infants. Dry dressings (talcum powder) have an excellent influence on the acute dermatitis of young infants. Under the profuse and repeated powderings the oozing dries up, the redness subsides, and the epidermis heals over. Measures should be taken to prevent scratching; the best means for this, perhaps, is to fasten on the arms a rolled up sheet of cardboard. In this paper tube the child can move its arms freely but cannot bend them. If a salve is needed, one made with equal parts of starch, zinc oxid, petrolatum and lanolin may prove useful. It can be covered with gauze with openings cut in it for eyes, nose and mouth. This can be renewed once or twice a day. Crusts and scabs are best removed with sprays of boiled water, wet compresses or starch poultices. After this the zinc oxid salve can be applied. With chronic eczema of older children, a course of mineral waters at some spa may be advised, or Vichy water at home or arsenical treatment. No tea, coffee, wine or other stimulants. Some children do better without eggs, but they are useful if borne well. The dread of alimentary anaphylaxis should not deter from these useful foods; it is not as frequent or as important as some maintain. Moussous and Rocaz have reported good results from thyroid treatment in small doses.

8. **Recurring Phlebitis.**—Roux relates the case of a girl of 12 who on three occasions has had phlebitis in the domain of the inferior vena cava during some acute infectious disease, varicella, scarlet fever, and mild typhoid. With the latter the inferior vena cava was affected and also the portal vein system, and there were two attacks of nephritis. The condition of the veins is still precarious, and any intercurrent infection is liable to bring a return of the trouble which seems to be dormant at present.

Le Nourrisson, Paris

November, 1916, IV, No. 6, pp. 321-396

12 Infant Welfare Work in a French Province. (25 années, 1889-1913, de protection des enfants du premier age dans le département de l'Oise.) Delobel.—p. 321.
13 *Treatment of Tuberculosis in Young Infants; Prophylaxis and Prevention of Generalization of the Infection. Combe (Lausanne).—p. 347.
14 Loss of Important Elements in Condensed Milk. (Enseignements à tirer de l'analyse d'un lait condensé.) M. François.—p. 371.

13. **Tuberculosis in Young Infants.**—Combe reiterates the vital importance of preventing the infection of infants during the first eighteen months of life, saying that infection between the twelfth and eighteenth months practically condemns the child to death within six or eight months. After the eighteenth month, tuberculous infection induces merely glandular disease, local and closed, against which the child is admirably armed. It is armed against this to such a degree that only some intercurrent disease or deplorable conditions as to hygiene entail generalization of the tuberculous infec-

tion and death. The nursling must be protected, he reaffirms, against both bovine and human tubercle bacilli: Cow's milk must be boiled or pasteurized. This protects against bovine infection, but to protect against infection from some tuberculous member of the family requires much time, much money—for antiseptics are expensive—and much space, so that the child can be isolated in a well ventilated, sunny room. A single moment's forgetfulness, and the whole edifice of asepsis crumbles; the child is infected. Besides this, the isolation of the child seems so hard and cruel to the family that it is seldom strictly carried out, but unless the young child is kept away from the bacilli-sower and from the articles contaminated with his bacilli the child's doom is sealed. The milk of a tuberculous mother contains more or less toxins, even aside from the danger from direct contact and the poor quality of such milk. The physician has to appreciate these dangers before he can summon up courage to insist that the consumptive mother must not suckle her babe. She must never hug it, never caress it, never take it on her lap, and must restrict all contact with it to the strictly necessary, and never touch it without having first disinfected her hands with soap and some antiseptic solution. She must sterilize her mouth several times a day with an antiseptic solution, and always hold a handkerchief before her mouth as she speaks, sings, coughs or sneezes, when she is in the room where the child is kept, whether or not it is in the room at the time. All dishes and articles should be boiled after using, and the table and body linen thrown into boiling water every day and be further sterilized by ironing with a very hot iron. All dusting in the room should be done with a cloth slightly moistened with turpentine, the walls and floors washed with an antiseptic solution. The infant should creep and play only on a freshly laundered sheet in a railed space, both indoors and out, and it should be given only sand and little stones to play with, all carefully boiled and dried in the sun. All its playthings, rubber nipples, etc., should be boiled each time before being given to the child.

These measures are all theoretically possible and have been carried out in numerous instances, but as a rule the only safe way is to remove the child from its mother immediately after birth or remove the consumptive from the family circle. In France, Germany, Switzerland and elsewhere provision has now been made for institutions where infants exposed to danger of this kind at home can find shelter and safety.

In discussing means to augment the resisting powers Combe describes how he gives sunbaths to very young infants, graduating the heliotherapy to their size and strength. He also gives exposures to the actinic rays filtered through a sheet of special blue glass, allowing only the useful rays to pass. He begins with five minute exposures, front and rear, the lamp at a distance of over 3 feet. The sittings are gradually lengthened to an hour front and an hour back, the distance 1½ feet. The natural or artificial heliotherapy improves the general condition but does not seem to act directly on the tubercle bacilli or their products. The diet is regulated according to the indications furnished by analysis of the infants' stools. The natural heliotherapy is applied according to Rollier's technic.

Presse Médicale, Paris

January 8, XXV, No. 2, pp. 9-24

15 Tuberculosis in the Origin of Psoriasis. R. Sabouraud.—p. 9.
16 *The Oculocardiac Reflex with Thyroid Insufficiency and Under Thyroid Treatment. Petzetakis.—p. 12.
17 *Marasmic Infants. (Etude des nourrissons atrophiques, hypotrophiques et dystrophiques.) R. Raimondi.—p. 14.

16. **The Oculocardiac Reflex with Thyroid Insufficiency.**—Petzetakis reports that in six persons with myxedema of varying degrees of intensity the reflex phenomena from pressure on the eyeball were enormously intensified over what is observed in normal persons. The hypothyroidism leaves the sympathetic without the normal stimulation from the thyroid. As a consequence, the antagonist nervous system gets the upper hand, and vagotony results. He has induced a similar condition in dogs by nerve sections. Under thyroid treatment in one of his cases the lost balance was restored, and the oculocardiac reflex after a fortnight was about the same as in normal conditions. In two of the cases even light pressure on the eye for only two or three seconds arrested the heart's action for seven, eight, ten and fifteen seconds. Not a sound could be heard from the heart during this interval, even on auscultation. The young man in one case grew pale, stopped breathing and lost consciousness but the pulse gradually resumed its course, and became quite normal by the end of the second minute. It was the general impression that if the compression had been kept up a few seconds longer the syncope would have been definite. In this case, under thyroid treatment compression of the eyeball no longer induced syncope; it merely retarded the pulse to 20 or 25 beats per minute.

17. **Marasmus in Infants.**—Raimondi is chief of the medical staff at the Institut de Puériculture at Paris, and he states that he has been impressed by the way in which some of the infants that have not progressed properly, showing a tendency to atrophy, hypotrophy and dystrophy, seemed to recuperate and grow into normal conditions when they began to be fed at regular intervals. In others, dieting, tonics or organ extracts answered the purpose. The old conception of athrepsia corresponds to the ultimate phase of badly managed marasmus. Improper methods of feeding are responsible for the atrophy in the majority of cases; in others the internal secretions are at fault, and the condition can be corrected only by some organ extract. The infant is not finished when he comes into the world, and the thymus, the hypophysis, the thyroid, the parathyroids or the suprarenals may be functioning inadequately. Giving the corresponding extract will tide the infant over this period of insufficiency. Raimondi declares that the use of organ extracts for infants is not as extensive as it should be. Infants need this treatment on account of the unfinished condition of these glands in them, just as adults need them when these glands are injured from disease or toxic influences. Experimental research has shown that with insufficiency on the part of the thymus, the bones are softer, the nitrogen and calcium content of the urine is larger, exhaustion, ulceration and a tendency to purpura are common, as also loss of flesh and lack of resistance to infections. Much in this experimental picture resembles the marasmus of young infants, and explains the benefit from thymus treatment, especially after ingestion of the total extract of the thymus.

The infants that seem to benefit from thyroid treatment, are small with dry or puffy skin and lids, the face waxy; the child does not seem bright and the skeleton and teeth may be backward in developing, and there may be eczema. An overlarge tongue also suggests a tendency to myxedema. The earlier this thyroid insufficiency is detected and remedied, the greater chance of warding off serious trouble as the child grows older. Thyroid instability is also suggested when babes small at birth do not grow normally, the bones and muscles keep small, the hair and teeth do not develop normally and the children find it difficult to sit up or hold up the head. This arrest in development may follow some infection.

Raimondi discusses further the beginnings of infantilism, for which hypophysis insufficiency may be responsible. The term is usually restricted to the genital organs, but the whole organism may be suffering from the stunting process. In short, he declares, the "endocrinians" along with the dyspepsia cases form the most important group of marasmic infants. The three other groups include those with inherited taints, those suffering from acquired infection, and those procreated under unfavorable conditions of overwork, drunkenness, lead or other chronic poisoning, advanced age, repeated pregnancies or other factors militating against eugenics. He calls this the group of *atrophiques par mauvaise conception* or *évolution fœtale contrariée*.

Berliner klinische Wochenschrift

December 25, 1916, LIII, No. 52, pp. 1381-1404

18 *Importance of Concentration and Temperature for the Biologic Behavior of the Blood Serum. (Bedeutung physikalischer Einflüsse für das biologische Verhalten des Blutserums.) H. Sachs.—p. 1381.
19 The Modern Procedure for Removal of Projectiles in the Tissues. (Steckschüssen.) H. Schmidt.—p. 1385.

20 Nervous and Mental Diseases as Affecting Military Efficiency. (Ueber nervöse und psychische Krankheiten in ihren Beziehungen zum Kriegsdienst.) B. Sauer.—p. 1389.
21 *Rachitis. (Ueber Rachitis. V. Stoffwechselheilung und klinische Heilung.) E. Schloss.—p. 1391.

18. Importance of Physical Influences for the Biologic Behavior of the Serum.—Sachs calls attention to the importance of the concentration and the temperature of the serum as affecting complement deviation tests. The complement may become inactivated in a salt-free medium, but can be activated again if the reaction is made either acid or alkaline. He thinks it is beyond question that in many cases the negative findings with the complement-deviation test are due to inactivation of the complement by the lack of salt. Some serums behave differently when cold, but they can be influenced by addition of hydrochloric acid and then behave differently. In both these conditions, the salt-poor medium and the cold, some change in the globulin is evidently responsible for the modified findings. Tests with inulin confirmed the importance of physical factors for the deviation of complement. Inulin rubbed into cold water forms a thick suspension while it is dissolved in tepid water. This difference is enough to affect the deviation of complement. With the solution there is no hemolysis in the biologic test, while hemolysis occurs regularly when the suspension instead of the solution is used. These and further observations related lead to the formulation of certain laws as to the primary action of physical factors on the antibody-laden cells, both in biologic tests and in the living body. Physical changes in the globulin of the serum may prove of far-reaching import, both for pathology and therapy.

21. Rachitis.—In this, his fifth article on rachitis, Schloss discusses the clinical cure as contrasted with the cure of the metabolic derangement. His research has apparently demonstrated that in the progressive phase of rachitis, phosphoric acid is evacuated in the feces much more than in normal conditions. Under cod liver oil, as improvement progresses, the evacuation by way of the intestines becomes materially reduced. With spontaneous improvement, on the other hand, the reduction in the output occurs in the evacuation through the urine. He regards this fact as demonstrating that the cod liver oil ensures better utilization of the food, improving absorption, but not influencing the disease process directly. He warns that it takes over three months for the improvement to reach an appreciable stage. The skull is liable to show the improvement first, and craniotabes is thus a convenient and reliable index as to whether the rachitis is stationary or retrogressing. In his hundreds of cases he noted always that whenever a child began to present unmistakable craniotabes, other symptoms of rachitis soon followed, and, he exclaims, "even more important than inducing the retrogression of rachitic symptoms is the prevention of the development of new. And it is in this direction that proper treatment displays the greatest efficacy. Even at the best, it is rarely ideal; complete restitution is only seldom possible. There is usually left some flattening or asymmetry of skull or thorax, and the tendency to exacerbations is greater than generally credited." Those who have rachitic children under observation for many years are astonished at the tenacity of the rachitis and the way in which new manifestations are liable to develop, especially when treatment is suspended. This tenacity of the disposition to rachitis shows the necessity for keeping up treatment, allowing brief pauses. He insists that during the first two, or better yet, first three winters the treatment must be continuous. Only as the child enters its fourth year of life can we feel confident, as a rule, that nothing more will come of it. His analysis of the metabolic findings over long periods sustains these assertions. The individual response to treatment and the tendency to recurrence are both mirrored in the metabolic findings.

Deutsche medizinische Wochenschrift, Berlin

December 14, 1916, XLII, No. 50, pp. 1533-1564

22 Gas Gangrene. (Ueber Gasbrand.) E. Fraenkel.—p. 1533.
23 *Spirochete Articular Disease: Spirochaetosis Arthritica. (Ueber eine bisher unerkannte Spirochäteninfektion.) H. Reiter.—p. 1535.
24 *To Ward Off Danger of Rousing Dormant Infection at Secondary Operations. (Die Berücksichtigung der ruhenden Infektion bei der Operation Kriegsbeschädigter.) M. Katzenstein.—p. 1536.
25 The Eye Findings in Typhus. (Augenbefunde bei Fleckfieber.) A. Gutman.—p. 1538.
26 *Acute Nephritis in Troops on Eastern Front. Rostoski and Pantaenius.—p. 1543. Conclusion.
27 Prompt Restoration of Function after Suture of Severed Radial Nerve Shows that the Severing Was Not Complete. P. Ranschburg.—p. 1546.
28 Isolated Fracture of Tabula Interna with Destruction of Brain Tissue from Grazing Bullet Wound at Back of Neck. J. Volkmann.—p. 1547.
29 *Dysentery. Rodenacker.—p. 1548.
30 Set of Two False Teeth Extracted from Esophagus under Esophagoscopy. I. W. Samson.—p. 1550.
31 Thrush of the Vulva in Young Woman. (Soor der Vulva.) Golliner.—p. 1550.
32 Chair Litter for the Trenches. (Schützengrabentrage.) Kurtzahn.—p. 1551.
33 Pathogenesis of Typhoid. E. Frank.—p. 1551.
34 The Literature on Tuberculosis since the Beginning of the War. (Tuberculoseliteratur im Kriege.) H. Tachau.—p. 1552.

23. Arthritic Spirochetosis.—Reiter describes a case of what seemed at first to be acute articular rheumatism with cystitis and conjunctivitis. The temperature was regularly 37 C. in the morning and 39 C. (102.2 F.) at night, with regular night sweats. This condition had kept up for thirteen weeks, and the emaciation and weakness were so extreme the young lieutenant had to be fed by hand. A spirochete was cultivated from the blood which moved about by spiral twisting, thus suggesting the name for it, *Spirochaeta forans*. It does not seem to be pathogenic for guinea-pigs, but mice die the eighth day with profuse sweating. Under salvarsan, slight improvement was noted but the joints were still swollen and painful and there was still some fever at date of writing, November 21. The first signs of trouble were noted in August.

24. Slumbering Infection as Affecting Secondary Operations.—Katzenstein emphasizes the way in which infectious germs may be harmlessly encapsulated and lie dormant for months or years, but then something may happen to rouse and release them, and the infection flares up anew. The physicians with the armies have had this happen again and again when they have sought to correct some crippling contracture or deforming healing of fractures following war wounds. One can never be sure that slumbering infection may not be present, compromising the effects of the intervention. Katzenstein reports here that he has systematically studied out three ways to cope with this danger, and has had excellent results with each. These three methods are: (1) Open treatment of the wound, especially after correcting deformingly healed fractures. The bones are held firm with a plaster cast, but he leaves the soft parts quite open, refraining from any attempt to suture until all danger of the infection is past. (2) The use of tissues from the site of former suppuration when any transplanting is to be done. He is convinced that the tissues that have been exposed to infectious processes become able to produce antibodies in time, and thus adapt themselves to their dangerous environment. This local tissue-production of antibodies he regards as the reason why lesions in the mouth or rectum and in the peritoneum heal so quickly, while the brain, joints, etc., which never normally come in contact with infectious germs, are so susceptible to their action. He used adjacent fat or fascia tissue in correcting ankylosis of joints after the healing of infectious wounds. The outcome was decidedly good in his ten knee joints thus treated, seven elbows, four wrists and twenty-one finger joints. He interposed in some of the cases the periosteum left after subperiosteal resection. Even with fractures, the greater resisting powers of the bone from a focus of infection can be utilized by chiseling off a scrap of this bone to serve as the bolt between the ends where such is needed. His third method is to operate in two sittings. First he prepares the ankylosed joint for the operation, opening up the cicatricial tissue and making the resections as needed. Then he closes the wound and waits for three days to see if fever or inflammation follows. If slumbering virulent germs had been aroused there would soon be signs of infection in the depths of the wound. When all is seen to be going well, he proceeds

to complete the intended operation with transplantation of free flaps of fascia, bone or skin. He has done over 1,000 operations at Berlin designed to "uncripple the war cripples," and since he has been using the above methods the results demonstrate that it is thus possible to obviate the danger from slumbering infection.

26. **Nephritis in the Troops.**—Rostoski and Pantaenius here conclude their study of acute nephritis in the troops on the eastern firing line. It has been frequent, but without or with merely slight and brief fever. The mild course and the absence of anuria and of much oliguria are characteristics of this war nephritis. Typhoid bacilli were cultivated from the urine in some cases, showing that typhoid bacilli were evidently responsible for some of the cases at least.

29. **Dysentery.**—Rodenacker emphasizes that dysentery runs its course in two distinct phases, the stage of catarrhal enteritis, and then the stage of ulceration. The first phase is influenced by antidysentery serum; the second stage by local application of silver nitrate. Preventive serotherapy is useful in epidemics, but keeping out flies is indispensable.

Medizinische Klinik, Berlin

December 17, 1916, XII, No. 51, pp. 1329-1354

35 Spiral Fracture of the Humerus in Throwing a Hand Grenade. (Die Spiralfraktur des Humerus beim Handgranatenwurf, eine typische Kriegsverletzung.) H. Küttner.—p. 1329.

36 Chronic Dysentery. (Chronische Ruhr.) Jürgens.—p. 1331.

37 *Arsenic in Treatment of Blood Diseases. (Ueber Arsenkuren bei Blutkrankheiten.) N. v. Jagic.—p. 1334.

38 *Necessity for Keeping Venous Blood in Limb to Prevent Gangrene after Ligation of Artery. (Ueber die künstliche Blutleere von Gliedmassen und unterer Körperhälfte, sowie über die Ursache der Gangrän des Gliedes nach Unterbindung der Arterie allein.) E. Sehrt.—p. 1338.

39 Clinical Diagnosis of Contracted Kidney. F. Munk.—p. 1341. Concluded in No. 52, p. 1360.

40 Ultimate Results of North Sea Sanatorium Treatment of Children. (Die Dauererfolge der Behandlungen von Kindern in Nordseeheilstätten.) Becker.—p. 1353.

37. **Arsenic in Treatment of Blood Diseases.**—Jagic discusses the various factors involved in the therapeutic action of arsenic. Its main effect is the stimulation of assimilation under small doses; the action on the blood picture is varied and irregular. The improvement in weight and flesh under the arsenic may prove deceptive, as the blood disease itself may not be essentially modified. A stimulating action on the suprarenals is also likely; this would explain much of the favorable changes under its influence. He then reviews in detail his own experience with arsenic in various blood diseases in turn. In chlorosis, arsenic had to be supplemented with iron to accomplish its purpose; when there was a tendency to obesity, arsenic did not seem to be required. With pernicious anemia the arsenic improved the general condition, but the blood picture continued to grow gradually worse. The arsenic seemed to promote regeneration of reds and production of hemoglobin in acquired anemias if some constitutional weakness of the blood-producing organs did not prevent. In the leukemias, arsenic proved effectual only in the myeloid forms and when long kept up, especially when combined with radiotherapy. The outlook is better the smaller the proportion of large ungranulated marrow elements in the blood. The more granulated elements the better the response to both arsenic and the Roentgen rays. In this as well as in pernicious anemia, the remissions seemed to be rendered more durable by arsenic. With lymphogranuloma and lymphosarcoma no effect was apparent in some cases while in others the tumors seemed to grow smaller, especially under the combined arsenic-Roentgen treatment.

Of all the forms in which arsenic can be administered, Jagic prefers von Ziemssen's solution as the best. He gives it subcutaneously. The directions for it are to boil 1 gm. arsenous oxid with 5 c.c. normal solution of sodium hydroxid till dissolved. It is then rinsed into a graduated flask, and diluted to 100 gm. and filtered. It is indispensable to neutralize the solution with hydrochloric acid. To neutralize 1 gm. of the arsenous acid requires 4.75 c.c. of normal hydrochloric-acid solution. In conclusion he gives the chemical analysis of the Ziemssen solution which explains its action. His first dose is 1 mg. arsenic, gradually increasing by 2 mg. to a 12 mg. dose. Each dose is repeated three times, the injections being given three times a week. When less vigorous action is required, the maximum dose is 7 mg. It is convenient to have a set of vials on hand with the proper doses already measured out for the course. For internal use of arsenic he prefers the pill form or an arsenical mineral water (Dürkheimer). In chlorosis he gives pills of arsenous acid and reduced iron or combines Blaud's pills with the Dürkheimer water.

38. **Improved Tourniquet.**—Sehrt presents arguments to show that collaterals develop better after ligation of an artery when the vein is ligated too. Also that the tendency to gangrene is reduced when the venous blood is thus kept in the limb. He states that gangrene developed in 24.4 per cent. of the legs in which the artery was ligated alone but only in 9 per cent. when both artery and vein were ligated. In the arm, there was gangrene in 7.8 per cent. with ligation of the artery alone and 0 per cent. when artery and vein were both ligated. He ascribes the better outcome in the arm to the fact that the arm offers a much more extensive reservoir for the venous blood than the leg. He gives illustrations of a kind of clamp with which it is possible to shut off the blood flow in the femoral or other main artery by compressing this artery, as a projecting part of the clamp compresses the artery alone, while the rest of the limb or abdomen is left practically untouched.

Münchener medizinische Wochenschrift, Munich

December 26, 1916, LXIII, No. 52, pp. 1821-1836

41 *Photothergy in Gynecology. (Ueber gynäkologische Aktinotherapie.) G. Klein.—p. 1821.

42 Meningitis after Infectious Sore Throat. (Meningitis nach Angina; Trepanation; Heilung.) F. Hahn.—p. 1822.

43 *Arrest of Severe Gastric Hemorrhage by Drinking Extract of Blood Platelets. (Ueber Stillung einer schweren Magenblutung durch Coagulen.) E. v. Meyer.—p. 1823.

44 Necessity for Antitoxin in Nasal Diphtheria. K. Ochsenius.—p. 1823.

45 *Treatment of Kidney Disease. (Klinische und funktionelle Studien über Nephritis. III.) H. Machwitz and M. Rosenberg.—p. 1824. Conclusion.

46 *War Neuroses among War Prisoners in Germany. (Kriegsneurosen und Kriegsgefangene.) F. Lust.—p. 1829.

47 Gas Gangrene Infection More Common in Wet Weather. (Einfluss der Witterung auf die Gasbrandinfektion der Kriegswunden.) R. Franz.—p. 1830.

48 Treatment of Fracture of Upper Arm. (Oberarmbrüchen.) Warsow.—p. 1832.

49 Adaptable Splint for Fractured Arm. (Eine universelle Schiene für Armbrüche, Oberarmbrüche. Verstellbare Beckenstütze.) Stolz.—p. 1834.

50 Field Incinerator. (Zur Hygiene des Stellungskrieges. III. Hygiene der Müllgrube.) K. Hannemann.—p. 1834.

51 *Improvised Atomizer for Applying Tincture of Iodin. F. Golch.—p. 1835.

52 *Simplified Technic for Transplanting Skin. (Mehr Transplantieren!) Bürmann.—p. 1835.

41. **Radiotherapy of Uterine Neoplasms.**—Klein here reports the present findings in women treated at the Munich clinic. The Roentgen rays are combined with radium and radioactive substances and a preparation of radium barium selenate is injected intravenously. The exposures are made about once a month until there are no more clinical evidences of the cancer. Over 18.5 per cent. of the ninety-two patients with inoperable malignant disease of the uterine cervix have had no further sign of trouble during the interval since. It ranges from four months to three years. About 50 per cent. of the thirty-two operative cases are still free from recurrence after an interval of from twelve to eighteen months, although in half of these there had been recurrence from one to three times before. One patient who had had a mammary cancer return three times previously, has been free from recurrence during the five and a half years to date, since the actinotherapy. His numbers are small, he admits, but the subsidence for several years to date of inoperable uterine cancer and the absence of further recurrences in the previously recurring operative cases are features unknown with exclusively operative measures. Even those who have succumbed to their cancer were given a year or more of life and freedom from clinical disease. Smooth and complete healing

was the invariable rule with cancers of the face. A complete cure was realized also in all cases of uterine fibromas and in nearly all of myomas.

43. **Arrest of Gastric Hemorrhage by Drinking Extract of Blood Platelets.**—The hematemesis occurred six hours after a gastro-enterostomy in a young man. It was arrested by ice and morphin but started again later. Meyer gave the man the contents of a tube of Coagulen, which he drank down and the vomiting and bleeding stopped at once and permanently. Meyer warns that this would have no effect if the stomach contained any fluid, as the blood platelet extract acts only by direct contact. Hence if used at all it should be directly after vomiting or as a preventive, while the stomach is still open and empty during the laparotomy.

45. **Treatment of Kidney Disease.**—This communication issues from Umber's service and presents the views and experiences there, which have recently been reviewed in these columns, February 3, p. 406.

46. **War Neuroses Rare in War Prisoners.**—Lust cites Mörchen's report that he found only five cases of war neuroses among the 40,000 war prisoners at the Darmstadt prisoners' camp. The majority reached the camp within three days of having been taken prisoner, and a number came from the Verdun region. There is every reason to assume that they had been subjected to the same kind of mechanical and emotional stress as the German soldiers, and yet the hysteric nervous disturbances so common among the soldiers were found only in one among each 8,000. Lust has also recently reviewed 20,000 war prisoners to select those to exchange, and he too found the war neuroses rare among both military and civilian prisoners of war. He calls attention to this as disproving certain prevailing theories as to the mechanical and psychic causes of war hysteria.

51. **Improvised Spray for Tincture of Iodin.**—Golch introduces a fine glass or metal tube through the stopper of the bottle, slanting it so it nearly hits the wall of the bottle about a third from the bottom. Then, through another glass tube, such as the nozzle of a fountain syringe, held at a right angle to the tip of the first tube, he blows across this tip, and the fluid in the bottle is drawn up and distributed in a fine spray. The fine glass tubes used for vaccine answer admirably for the tube running down into the bottle.

52. **Simplified Skin Grafting.**—Bürmann rinses the skin with salt solution and then goes over the surface with a razor as if for shaving, only with a little harder pressure. Fine scrapings of particles of wet skin thus collect on the razor and form a porridge-like mass which is transferred to the well granulating surface. The latter requires no preparation. The first dressing with boric acid salve is left undisturbed for five or six days. Then the surface is dressed with strong pressure from strips of plaster and this dressing is left for about a week. By this time, the scarcely visible scraps of epithelium have grown to the size of beans and pennies. This compressing plaster bandage is renewed two or three times so that by the end of two and a half or three weeks healing is practically complete.

Wiener klinische Wochenschrift, Vienna

December 28, 1916, XXIX, No. 52, pp. 1643-1666

53 *The Bacillus of Typhus. (Ueber die Morphologie des Fleckfieber-erregers.) E. Csernel.—p. 1643.

54 *The Biology of Tumors. (Einfluss mangelhafter Ernährung auf den Zustand bestimmter Neubildungen, hauptsächlich der Tumoren der weiblichen Sexualorgane.) J. v. Jaworski.—p. 1646.

55 War Wounds of the Spinal Cord. (Ueber einen eigenartigen Rumpfhabitus bei Rückenmarkschussverletzungen.) G. Sieffer and B. Sabat.—p. 1648.

56 War Neuroses. G. Mann.—p. 1651.

57 Poisoning from Berries of Atropa Belladonna; Seven Simultaneous Cases; Recovery. J. v. Braitenberg.—p. 1651.

58 The Pernitz Military Sanatorium. A. Baer.—p. 1652.

59 The Hemorrhagic Skin Reaction in Typhus. (Ueber die häm. Hautreaktion bei Fleckfieber.) B. Lipschütz.—p. 1654.

53. **The Typhus Fever Germ.**—Csernel gives five illustrations of the bodies found in typhus blood which seem to be the causal agents of the disease. Their identity with rickettsia seems to be established, but they show two distinct phases. They appear as a bipolar bacillus, the virulent form, and there is a long bacillus, a saprophytic form. In three cases he detected flagella suggesting protozoa, but the circumstances of the cases demonstrate, he declares, that the flagellates must be accidental guests, not the micro-organisms causing the typhus. On the other hand, the biologic tests testify to a bacillary infection.

54. **Biology of Tumors.**—Jaworski reports clinical experiences showing that the lack of proper food has an inhibiting influence on the growth of fibromas and myomas. The tumors retrogressed and the symptoms disappeared when the women, reduced to poverty by the war (Poland), got habitually only about 50 per cent. of the normal requirement of calories. On the other hand, malignant tumors seemed to be whipped up by the lack of proper nourishment. At the Home for Incurables where there have been 584 cancer cases since 1899, the death rate has increased from 67 to 91 per cent. and the proportion of cancer cases has materially increased, while the women with cancer average younger. The destructive influence of inadequate food is shown in the rapidly fatal course of uterine cancer. The semistarved organism, like that of the aged, is unable to oppose adequate resistance to the malignant disease. The data here presented are peculiarly instructive as the semistarvation and emaciation were not due to the neoplasm but were the extraneous conditions of material want.

Zeitschrift für Tuberkulose, Leipzig

December, 1916, XXVI, No. 6, pp. 401-468. Last indexed January 6, p. 72

60 Cresol Preparation for Disinfection of Sputum. M. Schottelius.—p. 401.

61 Combination of Calcium Lactate and Sodium Lactate in Treatment of Tendency to Hemorrhage from the Lungs. (Zur Kalktherapie der Hämoptoe.) Klare.—p. 410.

62 *Tuberculosis during the War from Standpoint of Social Insurance. (Erfahrungen in der Fürsorge für versicherte Lungenkranke.) F. Reche.—p. 413.

63 *Tuberculosis with and without Tubercle Bacilli in the Sputum. ("Offene" und "geschlossene" Tuberkulose.) Effler.—p. 418.

64 Sanatorium for Tuberculous Soldiers. (Die Militärlungenheilstätte Jüditten—Ostpr.) Daus.—p. 423.

62. **Welfare Work for the Tuberculous.**—In the course of this study of the measures advisable for tuberculous beneficiaries of the social insurance, Reche comments on the necessity for an exact diagnosis. Too many doctors in dubious cases, he says, decide that the patient has tuberculosis, giving him the benefit of the doubt as to sanatorium treatment. He urges the necessity for special asylums for the advanced cases; these should not be taken into the general sanatoriums. But at the same time, the milder cases should not be excluded from these institutions as otherwise the sick dread them as being only places to die in. The orphans entitled to a pension from the insurance funds can have this support in the form of home care in some healthy country place, and this he advises.

63. **"Open" and "Closed" Tuberculosis.**—Effler protests against the classification of cases of tuberculosis merely by the presence or absence of tubercle bacilli in the sputum. Many regard the case as contagious or noncontagious solely from the sputum findings on one or two or more examinations. Cases are common in which, if the examinations are repeated often enough, bacilli finally appear in the sputum. He cites some cases in which the examinations repeated several times in the course of two or three months, gave positive findings after two or three negative examinations. Gerhard used to tell of a case in which only the fifty-ninth examination gave positive findings. The prevalence of tuberculosis in cadavers suggests almost that there must be still some other mode of contagion than from the sputum alone. It is incredible that this enormous number of infections comes from those alone who have tubercle bacilli in their sputum. In short, Effler declares, any tuberculous person with sputum must be regarded as contagious, whether tubercle bacilli can be found at the moment or not. As for that, he adds, the absence of sputum is only a transient phase, which at any moment may take an unfavorable turn. Tuberculosis must be regarded not as a condition but as a living process, and be managed accordingly.

Gazzetta degli Ospedali e delle Cliniche, Milan

December 28, 1916, XXXVII, No. 104, pp. 1633-1648

65 *Hypertrophy of the Thymus. (Contributo allo studio e alla terapia dell'ipertrofia timica.) A. Gismondi.—p. 1634.

65. **Hypertrophy of the Thymus.**—Gismondi calls attention to the disturbances liable to occur from hypertrophy of the thymus not only from direct compression of the trachea and of the jugular blood vessels but of the veins supplying the brain and arm, thus impeding the circulation in the veins in the thymus which are already suffering from the fact of the hypertrophy. The result is a congestion in the thymus, a kind of erection of the gland, setting up a vicious circle, increasing the mechanical disturbances. The bronchial mucosa is also certain to be congested, and compression of the pulmonary veins interferes with the aeration of the blood. Severe asphyxia may develop suddenly at any moment and possibly prove fatal. The functional and physical symptoms denoting hypertrophy of the thymus are readily recognized if the possibility of the thymus being responsible is thought of. He describes a few typical cases to show that painting with iodin may induce the retrogression of the thymus, especially in young infants without alarming symptoms compelling haste. In older children prompt results can almost be counted on under Roentgen exposures. But he warns that this treatment must not be too violent, as he reports a case in which a mild tendency to rachitis was whipped up into a very severe form by a series of overstrong Roentgen exposures. His experience indicates that a dose of 5 or 6 H units is the extreme limit for a sitting, to a total of 20 units, using an aluminum filter. Franchetti and Pende have reported excellent results from administration of epinephrin in small daily doses. Pende combines it with hypophysis extract, having noticed that the combination of these two preparations seemed to have a special inhibiting influence on hypertrophy of the thymus.

Riforma Medica, Naples

1916, XXXII, No. 36, pp. 977-1004

66 Total Nitrogen, Cholin and Cholesterin in Cerebrospinal Fluid. C. Cantieri.—p. 977. Concluded in No. 37, p. 1009.

67 *Advantages of Rubber Sponge Tissue for Closing Gap in Skull. (Sulla chiusura delle brecce delle ossa craniche.) C. Scandola.—p. 983.

No. 40, pp. 1089-1116

68 Anomalies in Ductless Glands in Pseudo-Hermaphrodite Fetus. (Sulla presenza di cellule simil-gravidiche nell'ipofisi, di formazioni ghiandoliformi nella corteccia surrenale e di altri fatti degni di nota nell' apparato endocrine di un feto pseudoermafrodita.) R. Pellegrini.—p. 1089. Concluded in No. 41, p. 1123.

69 Importance of Rubber Gloves and Razor for Operating on the Wounded. (Piccoli contributi alla chirurgia di guerra.) U. Scinicarielli.—p. 1096.

No. 41, pp. 1117-1144

70 *The Action of the Toxins of Fatigue on the Circulatory Apparatus. L. Ferrannini and S. Fichera.—p. 1117. Concluded in No. 42, p. 1145.

71 Phosphorus Poisoning as Factor in the Severe Effects from Certain Projectiles. (Brevi considerazioni sulla natura di alcune ferite riportate in guerra.) G. Cautiero.—p. 1128.

67. **Rubber Sponge for Closing Gap in Skull.**—Scandola gives illustrations of the findings in a rabbit and a dog that had had a thin strip of rubber sponge tissue implanted in the hole left where the skull had been trephined. The animals were killed after nine and six months and, except for slight loose adhesion to the dura, the implant had not changed its place or given rise to disturbance of any kind, while during life the animals seemed entirely normal. In future he will use sponge tissue with an entirely smooth surface on the side toward the meninges. This, he thinks, will obviate adhesions. In connection with this account of his research he describes the various substances that have been advocated for plugging holes in the skull, and discusses the drawbacks of alien implants. When it is a question exclusively of an alien implant, his experience suggests rubber sponge tissue as eminently adapted for the purpose.

70. **Fatigue Toxins.**—Ferrannini has previously published an account of his research on the action of fatigue toxins on the muscles. He here describes his extensive study of the heart and vessels under similar circumstances. The work was done on frogs, rabbits and dogs. The findings all testify to a lowering of the blood pressure and bradycardia under the influence of the kenotoxins. The findings also suggest that these toxins act almost or entirely exclusively on the smooth fibers of the vessel walls.

Semana Medica, Buenos Aires

1916, XXIII, No. 42, pp. 379-404

72 Ophthalmology at Buenos Aires. (Breves consideraciones sobre el Pabellon Cleto Aguirre.) E. B. Demaria.—p. 379.

73 *The Lymphocytosis in Syphilitic Blood. (La linfocitosis sanguinea en los sifiliticos. Su valor diagnostico y pronostico.) C. P. Mayer and A. C. Gourdy.—p. 386. Concluded in No. 50, p. 628.

74 Proposed Tribunal of Honor in Argentina. (Colegio di medicos. Institucion de etica.) O. L. Bottaro.—p. 395.

75 Serum of Pregnant Woman Accelerates Hemolysis in Complement Deviation Tests; Male Serum Retards It. (Nuevos ensayos de diagnostico biologico del embarazo.) F. A. Deluca.—p. 397.

76 Insufflation of Air in Treatment of Pleurisy with Effusion. (Tratamiento de los derrames pleurales por la insuflacion de aire esterilizado.) A. Cetrangolo.—p. 399.

No. 43, pp. 405-430

77 Chronic Diarrhea of Tropical Regions. (Sobre la llamada diarrea cronica de los paises calidos.) P. J. Garcia.—p. 405.

78 Connection between the Hypophysis and Cholesterin. G. P. Goñalons.—p. 408.

73. **Lymphocytosis in Syphilitic Blood.**—Mayer and Gourdy recall that the Wassermann reaction does not occur exclusively in syphilitics, and that it is by no means infallible. Its findings may sometimes be supplemented by the discovery of lymphocytosis in the blood. When lymphocytosis is discovered and when it becomes more pronounced with or without treatment, even with a negative Wassermann reaction, syphilis should be suspected. They found lymphocytosis pronounced, in some of their long series of cases reported in detail, as early as the second, eighth or twelfth day after infection, often before the Wassermann test elicited a positive response. The lymphocytosis in one case at the eighth day was 49.33 per cent. The highest figure, 64.66 per cent., was in a young man twenty-nine days after the primary sore had first become manifest. No treatment had been given in most of these cases; when it was commenced the numbers of lymphocytes increased. In the first series of fifty-two cases of recent untreated syphilis, the lymphocyte count was within normal range in only nine, and in these there was some concomitant suppuration, probably modifying the blood picture. In some of these cases the lymphocytes within normal range promptly ran up to exceptionally high figures as soon as treatment was instituted. The average of the lymphocytosis in this series was 36.54 per cent. They call attention in particular to the case of a young man whose erosion dated from only two days and the lymphocytes numbered 34 per cent. The Wassermann test was negative. Twelve days later the erosion had become transformed into a typical syphilitic hard chancre with swollen inguinal glands, and specific treatment was instituted. The lymphocytes at this time were 38.66 per cent., but the Wassermann was still negative. Two weeks after this there was lymphocytosis of 40 per cent. and a positive Wassermann reaction. Two weeks later superficial manifestations of syphilis became apparent. Under specific treatment, by the end of six months the Wassermann reaction was faintly positive with lymphocytosis of 42.33 per cent.

This study of the diagnostic importance of lymphocytosis in syphilis is continued through ten numbers of the *Semana*, the differential blood count in nearly 200 cases being given with the brief clinical history, all confirming the practical constancy of lymphocytosis as about the first appreciable general sign that the spirochetes are installed.

Siglo Medico, Madrid

December 16, 1916, LXIII, No. 3288, pp. 801-816

79 Malaria in Spain. E. Luengo.—p. 802. Continuation.

80 Mechanisms Regulating the Metabolism. A. Pi y Suñer.—p. 808. To be continued.

Hospitalstidende, Copenhagen

January 3, LX, No. 1, pp. 1-24

81 Magnesium Sulphate in Treatment of Tetanus. J. Nordentoft.—p. 1.